RESEARCH PAPER

Caregiver acceptance of a patient navigation program to increase human papillomavirus vaccination in pediatric clinics: a qualitative program evaluation

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ABSTRACT

Objective: The purpose of this evaluation was to examine the acceptability of a multi-component patient navigator (PN) intervention program designed to decrease barriers to human papillomavirus (HPV) vaccination among caregivers of adolescents. We sought to understand the most important components of the program from the caregivers' perspective and to evaluate remaining barriers to vaccination.

Method: Caregivers of children 9–17 years old (N = 102) participated in qualitative semi-structured interviews with questions informed by the Theory of Planned Behavior. These interviews assessed experiences with a PN program which offered HPV vaccination, scheduling, and reminders in pediatric clinics. We included randomly selected 46 program participant transcripts and 11 decliner transcripts. A thematic approach was used to analyze transcripts for themes related to acceptability of HPV vaccination, important program components, and any problems encountered.

Results: Major themes included: reasons for making HPV vaccination decision, helpful program components and suggestions for improvement, and remaining barriers to vaccination. Those who declined vaccination stated that their child was too young or not ready to think about sex, or they did not have enough information to make a decision. However, they felt that PNs were respectful of their decision. Program participants felt that vaccination was an important way to prevent cancer. Program participants had often not been aware of the vaccine and felt that having it explained was very helpful.

Conclusion: This program evaluation found that caregivers of pediatric patients, even those who declined the HPV vaccine, appreciated the program and felt it provided important information about the vaccine.

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Introduction

Human papillomaviruses (HPV) are believed to contribute to approximately 33,700 cancers annually in the United States.¹ HPV vaccination is expected to greatly reduce the incidence of these cancers if the vaccine is administered to a high proportion of adolescents before exposure to HPV. For this reason, the Advisory Committee on Immunization Practices (ACIP) recommends that all children 11–12 years of age receive the HPV vaccine, with adolescents and young adults considered up-to-date if they received 2 doses 5–6 months apart when <15 years old, or if 15–26 years old, they should receive 3 doses at 0, 2, and 6 months.² However, uptake of the vaccine has been modest in the US (65.5%), and up-to-date rates of the series have also been low (48.6%).³

Reasons for low initiation and completion have been widely documented in the literature. The most important reason that patients do not get vaccinated in the US is lack of strong recommendation of the HPV vaccine to their patients.^{4–6} Moreover, when providers do give a recommendation, some present HPV vaccination as optional rather than recommending it as routine.⁷

Other reasons for not vaccinating include: caregivers of adolescents not knowing about the vaccine, the vaccine's high cost, concern regarding possible effects on sexual behavior, and fear of side effects.^{7,8} Programs developed to address these barriers have been described in the literature.^{9–11} However, many have demonstrated little to moderate success, likely because only 1 or 2 barriers to HPV vaccination were addressed. It has been stated that multi-component programs addressing multiple barriers to vaccination are necessary to achieve high uptake and completion rates for the HPV vaccine series.¹²

This evaluation focuses on a program¹³ that utilized patient navigators (PNs) to: (1) present educational materials about the HPV vaccine to the caregivers of pediatric patients attending pediatric clinics administered by the University of Texas Medical Branch (UTMB), (2) provide strong recommendations for the vaccine by providers, (3) schedule follow-up visits for additional HPV vaccine doses, and (4) ensure patients receive reminders or are rescheduled for missed appointments to improve completion of the HPV vaccine

series. Programs developed to reduce barriers to HPV vaccine series completion should be assessed qualitatively to better understand problems that patients continue to encounter. As a result, these problems can be addressed, and the program improved. Some issues may not be identified through quantitative assessment, as they may be too subtle to be identified that way. Further, it is important to identify strengths of any program from the perspective of program utilizers so that they may be replicated with the most important components intact elsewhere. This qualitative assessment was conducted to determine the acceptability of this program to caregivers, understand the most important components of the program from the caregivers' perspective, and evaluate barriers that remained after program implementation.

Results

Of 269 HPV vaccine program participants asked to participate in this evaluation, 157 (58.4%) agreed. However, 68 could not be contacted or declined later when contacted. Among the 21 caregivers who declined the vaccine (decliners), 20 (95.2%) initially agreed to the interview, but 9 later declined or could not be contacted. Responses from 11 decliners and 46 program participants are included in this report. We included transcripts from all 11 decliners, but did not evaluate every transcript for the HPV vaccine program participants, as saturation of themes was achieved for that group. Therefore, we included a total of 57 interviews in this program evaluation. Among program participants, 38 completed the vaccine before the interview, 4 completed the series after participating in the interview, and 4 did not complete after participating. Most caregivers were female, but race/ethnicity was evenly distributed between black, white, and Hispanics (Table 1). Almost half were not employed. The income for most caregiver households was low, and the majority of their children were covered by Medicaid or the Children's Health Insurance Program (CHIP).

Reasons for making the HPV vaccination decision

An important component of Theory of Planned Behavior (TPB) is an assessment of the degree to which a person has a favorable or unfavorable assessment of a particular behavior. Caregivers with positive assessments of a health behavior may have intentions of engaging in that health behavior, which is important to engaging in the behavior. Therefore, we assessed their reasons for making their decision about HPV vaccination, and their feelings about HPV vaccination. Those who declined to vaccinate their child mentioned 4 common themes. In general, some felt their child was too young, should make the decision for themselves when they were older, was not ready to think about sex, or was too anxious about vaccination (Table 2). Most decliners (8 of the 11) did plan to vaccinate their child at a later point in time. For example, when asked whether they think their child will get the HPV vaccine in the future, one caregiver who had declined said, "Yes. I'm shooting for it." Some decliners wanted more information on the vaccine's safety, and preferred to find the

Table 1. Sample characteristics.

Caregiver characteristics	n (%)
Gender	
Male	1 (1.8)
Female	56 (98.2)
Race/ethnicity	
NH black	18 (31.6)
NH white	18 (31.6)
Hispanic	19 (33.3)
Other	2 (3.5)
Age	
20–29	3 (5.3)
30–39	28 (49.1)
40–49	17 (29.8)
50+	9 (15.8)
Education	
Less than HS	5 (8.9)
HS graduate or GED	11 (19.6)
Some college or graduate, trade school	40 (71.4)
Relationship with child	
Parent	52 (91.2)
Grandparent or legal guardian	5 (8.8)
Marital status	
Married/living with partner	21 (36.8)
Single, never married	14 (24.6)
Widowed	4 (7.0)
Divorced/separated	18 (31.6)
Employment status	
Full-time	20 (35.1)
Part-time	7 (12.3)
Not employed	28 (49.1)
Retired	2 (3.5)
Household income	
Less than \$10,000	13 (23.6)
\$10,000–\$19,999	13 (23.6)
\$20,000–\$29,999	14 (25.4)
\$30,000–\$39,999	6 (10.9)
\$40,000+	9 (16.4)
Caregiver's child vaccination status	
Completer	46 (70.7)
Decliner	11 (19.3)
Child's insurance coverage	
Commercial insurance	10 (17.9)
Medicaid or CHIP	44 (78.6)
Other or don't know	2 (3.6)

information for themselves before agreeing to have their child vaccinated. One decliner stated, "I don't know what this vaccine is going to do to my kids down the line, I don't know what harm it's going to do because it's so new." Another said, "I kind of felt like let me go home and kind of like research on my part more and then when her next doctor visit, I would go yay or nay on it."

Caregivers that participated in the vaccine program also gave several reasons for their decision about HPV vaccination (Table 2). Many program participants mentioned that their children were currently sexually active or would be eventually. They felt preventing cancer was important. Other themes were related to past experience with cancer. Caregivers were motivated by knowing a family member who had experienced cancer. Others knew someone who had either experienced an HPV-related disease or had experienced it themselves. Others discussed knowing other children who had been vaccinated, and felt that learning about someone else's good experience with having their child vaccinated helped them to make a decision. Less common reasons for accepting HPV vaccination included seeing an ad on TV or understanding that the vaccine was safe. Further, some thought the vaccine was required.

Table 2. Most common reasons why HPV vaccine decision was made.

Themes from HPV vaccine decliners	
Child not ready due to age	"I support it. I just didn't choose to vaccinate him at this time because he's 10." (Hispanic)
Child will make decision when older	"So I just don't feel that HPV is necessary. And if they decide they want to do it, then I want them make that decision when they are 18 and they are fully educated and they can make that choice themselves." (White)
Child not ready to think about sex	"I just, right now, with the circumstances with it being a sexually transmitted disease, he really isn't at that age to interact with girls in that fashion so I just decided to wait." (Hispanic)
Vaccine anxiety	"I actually think it was just, actually really thinking it was just actually him not wanting it. I think it's something about the shot, and I'll talk with him about, like "that's a little bitty little pinch feeling." He does not like needles period." (Black)
Themes from HPV vaccine program participants	
Cancer in family	"Cancer runs in our family. Right now my sister is dealing with cancer and I would hate for her to not be vaccinated and end up getting cancer because of me not wanting to do it." (Hispanic)
Sexual activity status	"I was kind of scared at first to get her vaccinated because ... it's a way of telling them hey go ahead and have sex, you're protected either way around. It scares the hell out of me. But as I sat and I thought about it, I'm like, "you know, I do wanna protect her," so in the event that something does happen, you know, she's protected..." (Hispanic)
Knew someone else who got the vaccine	"I found out he was sexually active." (Hispanic)
Knew someone or had experienced HPV-related disease	"...and then I talked to a friend of mine she had got her granddaughter vaccinated and she was very helpful with that <decision about vaccination> as well." (American Indian)
Offered the vaccine	"I had to get my cervix froze because I thought I had cancer it was just really rough in getting a biopsy done down there is not fun at all. It was painful." (Black)
Prevention/protection	"I decided to get the vaccine because my best friend had cervical cancer and so did my sister, so... I was trying to prevent anything that may happen in the future..." (White)
	"...just because it was asked while we went to the clinic." (Hispanic)
	"And anything I can do, to prevent my daughter from any types of cancer I would take, especially if it's free from the state of Texas. You'd be a fool not to take advantage of it you know." (White)

Feelings about HPV vaccination

Almost all caregivers whose children received at least 1 dose felt positive about having their children vaccinated. They felt it gave them, "more peace of mind" or "a sense of security and safety." Decliners were also appreciative of the program, and were satisfied with how they were approached. One decliner of a vaccine-anxious child said, "I was satisfied. They (PNs) were very polite they were nice. And when my daughter said, "No, not today," they said, "Ok that's fine."... I think that was great." Decliners felt their decision about HPV vaccination was respected, and were satisfied with the program. Among 45 participants who discussed their feelings, only 2 felt negative about the vaccine. One caregiver felt the pharmaceutical industry was pushing the vaccine. As a result, she did not allow her child to complete the series. However, she said that she felt the HPV vaccination program did not make her feel pressured by stating, "Absolutely not. No, she's <her child's doctor> been great I mean I didn't feel anything <pressure to vaccinate> about

that day." One other caregiver who did not complete the series stated, "I regret it <HPV vaccination>" and discussed how her daughter was diagnosed with a late-stage cancer (not associated with HPV) after vaccination, which she felt the vaccine should have prevented. Therefore, she regretted getting her daughter vaccinated, and had no wish to complete the series.

Helpful components of the program and suggestions for improvement

The TPB construct of perceived behavioral control was addressed when asking questions about components of the program that caregivers felt were helpful or how they thought the program could be improved. The ease with which participants perceived the access to the HPV vaccine at the clinic could determine whether they engage in the behavior, or even develop an intention to vaccinate their children. Forty-three caregivers used a concrete example to explain the most helpful thing about the program. The majority (n = 31) felt having the

Table 3. Most helpful things about program.

Made HPV vaccination more convenient	"They made the other appointment. They, when they approached me and talk to me about it. Then when I went in after the first appointment, they made sure to make the next appointments for me so that I wouldn't forget. So they made it easy for me because they just made the appointment before I even had to go up to the front and do it. She also told me that I would get a reminder that, you know, they had an appointment and all that stuff. So, yes. I mean, they made it very easy actually." (Hispanic)
Did a good job vaccinating	"He's a runner like he likes to try to run and he will try to fight and usually I give him my cell phone and tell him play your game on my phone and just relax and they kind of talk to him through it and that helps a lot" (White)
Explained the vaccine to them and/or their child	"Uh, they were very helpful by explaining what the vaccine did and what it was for. They were very kind. I mean, they kinda sat us down and explained it to me and my daughter what she was getting vaccinated for, so it was very helpful." (Hispanic)
Reminders/follow-up	"They did as far as, you know, getting back to me that she did need a shot, and understanding about rescheduling the appointment." (Hispanic)
Polite and respectful staff	"The people, the ladies have always been very nice, when they would come in and talk to me. And actually this time when they came in, I said "you can stop." Because I have been approached every time when I bring the kids in. And I said, you know I appreciate the thought and what you are wanting to do, but you know it is just not something that I'm interested in." (Hispanic Decliner)
Provided paperwork/pamphlets	"Well we were there for another reason, and they came in the nurse with the doctor informed us about the HPV and then they gave us some literature on how it works and what HPV was, and things like that, and then they basically talk to us about it and then the nurse came in and she actually gave him the shot." (Black)
Recommended or offered the vaccine	"I mean they just offered it to him. And I had already got it for my older son, so we decided to go ahead and get it for him as well." (Hispanic)

vaccine explained to them or their child was the most helpful, since most were not even aware of the vaccine before being approached by the PN. Other common themes related to helpful components of the program included: the HPV vaccine was offered or recommended by program staff or health providers, they received pamphlets about the vaccine, follow-up vaccination appointments were made at the time the first dose was given to increase convenience, and that the clinic personnel followed up with them (Table 3).

Several caregivers had suggestions to improve the program ($n = 30$). Most commonly they desired even more information about the vaccine while some preferred a more visual format. One caregiver noted, “I think that they should probably go more into detail about it.” Another caregiver stated, “...if they could see slides or like a photo video, like a video or actually people their age that actually have it [the HPV vaccine].” Nine caregivers mentioned they would like to see more outreach into the communities. One caregiver said, “I mean I wish there was a way we could get more parents and more children in to get vaccinated...” Others felt the approach should emphasize prevention of cancer rather than prevention of contracting the virus. Finally, some caregivers wanted the vaccine to be administered as only one shot. One caregiver responded, “Actually, it would be better being 1 shot, instead of 3.”

Perceived remaining barriers

TPB assumes that the resources needed to perform a health behavior already exist. Although our program attempted to ensure that this criterion was met, it was recognized that this may not be the case. Therefore, we asked participants whether there was anything that kept them from being able to get additional doses of the vaccine, as needed, for their children after initiating the series. Caregivers who reported having problems getting timely doses of the series ($n = 31$) mentioned several remaining barriers (Table 4). The 4 barriers mentioned by 4 or more caregivers were: their child’s fear of needles, issues with transportation, forgetting appointments, or finding the time to get their child to the clinic. Other barriers included: child was ill at approach, concern about side effects, not enough information about vaccine effectiveness, misunderstanding about how the vaccine was paid for, and the caregiver’s spouse did not want the child to get it. One caregiver said she thought the program was a clinical study.

Many caregivers did not know about the vaccine before they were approached. One participant said, “I probably wouldn’t have known about it to be honest,” when asked how likely it would have been for them to complete the series for their children without the program. Twenty six of 37 stated

they would not have completed the HPV vaccine series without the program. One said, “No no. If I didn’t have the program then I wouldn’t have known about it. So the program helped me decided to get it and stick with it <complete the series>.” Seven caregivers felt that it would have been difficult to complete the series without the services provided by the program. Five felt they would have had their children complete the series without the program services, stating “My doctor’s pretty informative so, I mean even regardless of the program, I would’ve already have gotten it even if I hadn’t heard about it.”

Discussion

Overall, this PN-facilitated HPV vaccination program was well received by caregivers. Although previous literature notes that strong recommendation from a health provider is the most important factor in HPV vaccine uptake,^{4,14} this program assessment found that information offered about the vaccine by PNs prior to seeing their physician is also well-received. Caregivers mentioned several program features they appreciated which could provide a model for future interventions. Furthermore, the results of our assessment show that re-approaching decliners is acceptable to families, as many intend to vaccinate their children in the future. Caregivers who declined vaccination after being approached by PNs had reasons for vaccine delay similar to patients who delayed in another study, which indicated some decliners prefer to vaccinate their children later or seek more information.¹⁵ Thus, most decliners gave reasons for refusing HPV vaccination that can be easily clarified by a few minutes of conversation with an informed healthcare provider. It is important not to miss opportunities to discuss their reasons with decliners, as their concerns are likely easy to address.

This qualitative program evaluation demonstrated the importance of approaching caregivers to inform them about the HPV vaccine. Many caregivers did not know that the vaccine was available, and felt the program allowed them to learn more about it. Education has often been cited as an important component of encouraging HPV vaccine acceptance and intention to vaccinate, but rarely have educational efforts been followed immediately by free vaccination and continuous follow-up to ensure patients are able to complete the series.⁹ Further, caregivers felt that making follow-up appointments without relying on them to remember to do it themselves was an important part of the program. Caregivers not only appreciated the reminders, but they also appreciated having PNs make appointments automatically at the time the first HPV dose was administered, as well as the efforts to

Table 4. Remaining barriers to HPV vaccination.

Fear of needles	<i>“I know that the main thing is kids just have a big fear of needles. And even parents have fear of needles, and they transcend that fear to their kids. It’s what stops a lot of people from getting their vaccines.”</i> (White Decliner)
Forgot appointments	<i>“...then they scheduled it, it was pretty easy. I liked it because you’re always running around all the time, then you can’t remember everything, so I’m like, “Oh!” and I told [child] I have to schedule it. And then I forgot to call, and then they called me so I’m like, “Oh yes, this is great.””</i> (White)
Lack of convenience	<i>“Well, I guess just getting them there. It wasn’t that much of an issue, but, you know, having to take time to take two children to the doctors, when you have three of them is not always the easiest feat.”</i> (Hispanic)
Transportation issues	<i>“Yes I just had a transportation problem because my mom works out of town and she’s the only person that can take me up there and so I had to wait for her to on a day that was good for her to take me up there.”</i> (Black)

contact and reschedule appointments when they missed one. Therefore, these program components should be considered as an important part of future HPV vaccine program considerations.

This program was novel in that it informed caregivers and patients about the HPV vaccine before patients saw their pediatrician, as well as giving HPV vaccination education to providers. Further, it provided reminders in several formats, rather than choosing one as has been done in previous interventions.^{11,16–18} This program also included automatic scheduling of future appointments, which removed the burden of scheduling from the caregiver. Patients may not remember to schedule follow-up appointments themselves, and placing the responsibility for scheduling these visits on the clinic has been shown to increase visits in a study of patients with asthma.¹⁹ Caregivers felt that they would not have completed the series for their children without the program, demonstrating the importance of follow-up.

Issues mentioned during program evaluation interviews were remedied quickly after they were discovered, leading to improvements in the program. For example, we noted that during early interviews, caregivers sometimes discussed the vaccine as preventing a sexually transmitted infection, or discussed concerns about their children thinking that HPV vaccination would indicate that they were being permissive of sexual activity. Following this, PNs were instructed to present the vaccine as a cancer-prevention vaccine, and discuss how the virus was transmitted only if directly asked by parents. This is consistent with recommendations from the Centers for Disease Control and Prevention, which focuses on the importance of the message reflecting safety and necessity of the vaccine.²⁰

Unfortunately, transportation was more difficult to address, as public transportation services in Texas are not adequate. We mostly addressed this issue by working with caregivers to reschedule as needed, schedule visits of multiple children at the same time, and coordinate vaccination with other scheduled provider visits.

This program evaluation had some limitations. One limitation was that some HPV vaccine decliners were not approached for the interview, as PNs were asked to avoid making any patients feel uncomfortable about their choice. Therefore, opinions expressed by decliners may not be completely representative, particularly for caregivers who decline all vaccines for their children. Further, non-completers were difficult to contact because there were very few of them, and contact had often been attempted by PNs several times. Thus, those contacted may have had different responses than those who could not be contacted. Finally, as we implemented changes in response to the program evaluation, later interviews may have included fewer barriers compared to earlier interviews.

In conclusion, a multi-component HPV vaccination program facilitated by PNs was well accepted by caregivers of pediatric patients visiting clinics. Even caregivers who declined to get their children vaccinated found the program acceptable. Most components included in the program were

noted as being appreciated by caregivers, and reduced many of the barriers to HPV vaccination that patients face. Although some barriers remained that could not be completely addressed, such as transportation, their children's fear of needles, or forgetting to attend appointments despite reminders, caregivers felt that the program was important and beneficial.

Patients and methods

This qualitative evaluation assessed a program implemented in clinics serving pediatric patients at the University of Texas Medical Branch (UTMB). Program details have been published elsewhere.¹³ In 2015, the University of Texas Medical Branch implemented a multi-component intervention utilizing patient navigators (PNs) in pediatric clinics in Southeast Texas through a grant from the Cancer Prevention Research Institute of Texas. The program has previously been described in detail.¹³ Briefly, PNs approached caregivers of unvaccinated patients 9–17 years of age who were attending participating clinics and counseled them about the HPV vaccine. Children whose caregivers agreed to vaccination were given one dose, if possible that day. Follow-up appointments were scheduled for additional doses at the time of the first dose. Reminders for follow-up appointments were sent by texts, automated calls, and personal calls.

In this report, participants are referred to as caregivers, as the sample included parents, grandparents, and other adult family members who made the decision whether to vaccinate their child against HPV. Caregivers approached about the vaccine were offered the opportunity to sign up to participate by PNs. Potential participants were contacted by phone. Caregivers were only eligible if they: could consent to vaccination for their child, had not participated previously, and could speak English.

Semi-structured interview guides based on the Theory of Planned Behavior (TPB) were developed to collect data. TPB is a psychological model that explains how intention and perceived behavioral control affects the performance of a behavior.²¹ This theory suggests that individual behavioral intentions and behaviors are shaped by attitudes toward those behaviors, subjective norms, and perceived behavioral control. For this evaluation, we focused primarily on the TPB constructs related to attitudes toward the health behavior (HPV vaccination) and perceived behavioral control (the caretakers' perception of the ease with which they could obtain the HPV vaccine doses). In addition, we discussed remaining barriers to HPV vaccination. While TPB assumes that individuals have the opportunities and resources to be successful in engaging in a particular health behavior, our low-income population faces a number of issues that may include barriers that we had not previously anticipated when developing the vaccination program. Interview guides (see [supplemental material](#)) were developed to address each caregiver's particular circumstance. For example, the interview guide for decliners did not ask about follow-up for additional vaccinations. Before the interview, caregivers were told that they did not have to answer

all of the questions they were asked. Further, some questions were not asked if they did not apply to the caregivers' situation.

Caregivers whose children received at least one vaccine through the program (referred to as participants) were contacted after they either missed a dose without calling to cancel their appointment, or after they completed the HPV vaccine series. We contacted caretakers who missed appointments to better understand remaining barriers. Of the 8 caregivers contacted after missing a dose, 4 later completed the series. Those who declined to vaccinate their child but agreed to participate in the interview were contacted promptly after declining the vaccine. We are reporting methods for this evaluation using the Consolidated criteria for Reporting Qualitative research (COREQ).²²

With University of Texas Medical Branch Institutional Review Board approval, interviews were conducted from May 26, 2016 to October 18, 2017 during a single meeting or telephone call lasting less than 1 hour. Participants were compensated with a \$25 gift certificate for their time. All participants were previously unknown to the researchers. Data were collected by 4 female interviewers, including the primary investigator and 3 research assistants (JMH, LM, Megan Hotard, Vivian Tat). On average, the recorded interviews lasted 15–20 minutes. All interviews were audio recorded and transcribed, then checked for accuracy. Transcripts were iteratively discussed as interviews were being conducted to identify programmatic issues that could be addressed by the team to improve the HPV vaccination program. These sessions were also used to create a code book.

Data analysis

The analysis began with preliminary close reading of the interview transcripts, and memo-writing. The team met to develop deductive codes based on interview guides and inductive codes based on emerging themes. The coders ensured coding accuracy and consistency by meeting regularly with the team to review the coding process. Coders sought consensus in modifying and adding new codes to the codebook.²³ Codes were applied to transcripts using NVivo software (QSR International Pty Ltd. Version 10, 2012), which was used to determine the saturation of the themes across transcripts. The code summaries and written memos were used to conduct thematic analyses to identify salient themes related to the TPB constructs of interest, and enabled interpretation of findings on participants' experiences and perceptions about the impact of the HPV vaccination program to increase uptake and completion.²⁴ In addition to aiding in the processing and examining of the data, the memos enabled the research team maintain a documented trail of the analysis process. We evaluated all transcripts for decliners, and chose program participant transcripts randomly until saturation for themes related to the TPB constructs being examined was achieved.²⁵

Abbreviations

TPB	Theory of Planned Behavior
HPV	human papillomavirus
PNs	patient navigators
US	United States
UTMB	University of Texas Medical Branch
CPRIT	Cancer Prevention Research Institute of Texas
CHIP	Children's Health Insurance Program

Disclosure of potential conflicts of interest

No potential conflict of interest was reported by the authors.

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