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Characterizing Safety-net Providers' HPV Vaccine Recommendations to Undecided Parents: A Pilot Study

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Abstract

Objective—Although provider recommendation is a key predictor of HPV vaccination, how providers verbalize recommendations particularly strong ones is unknown. We developed a tool to describe strength and content of provider recommendations.

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Informed consent: We confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story. This study was approved by the UT Southwestern Institutional Review Board (STU022013-016), and all procedures were followed in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975.

Author contributions: (1) conception and design of the study (JT, AB, RS, SCL, CSS, SF, DP) or analysis and interpretation of data (all); (2) drafting the article (JT, LAS) or revising it critically for important intellectual content (all); and (3) final approval of the version to be submitted (all).

Conflicts of interest: none.

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Methods—We used electronic health records to identify unvaccinated adolescents with appointments at six safety-net clinics in Dallas, Texas. Clinic visit audio-recordings were qualitatively analyzed to identify provider recommendation types (presumptive vs. participatory introduction; strong vs. weak), describe content communicated, and explore patterns between recommendation type and vaccination.

Results—We analyzed 43 audio-recorded discussions between parents and 12 providers. Most providers used a participatory introduction (42 discussions) and made weak recommendations (24 discussions) by using passive voice or adding a qualification (e.g., not school required). Few providers (11 discussions) gave strong recommendations (clear, personally-owned endorsement). HPV vaccination was lowest for those receiving only weak recommendations and highest when providers coupled the recommendation with an adjacent rationale.

Conclusion—Our new tool provides initial evidence of how providers undercut their recommendations through qualifications or support them with a rationale. Most providers gave weak HPV vaccine recommendations and used a participatory introduction.

Practice Implications—Providers would benefit from communication skills training on how to make explicit recommendations with an evidence-based rationale.

1. Introduction

Trend analyses of human papillomavirus (HPV) vaccine coverage (initiation and completion of the 3-dose series) show rates are plateauing in the United States[1,2] and lag far below the goal of 80% and the coverage rates of other recommended adolescent vaccines.[3] In 2014, only 60% of females and 42% of males ages 13–17 received the first HPV vaccine dose.[4] Studies have documented parental hesitancy when making a decision about the HPV vaccine [5,6] and a rise in negative attitudes toward vaccines in general.[7,8]

In the U.S., vaccines are delivered opportunistically in primary care clinics [9]; thus, provider recommendation is a key determinant of parental HPV vaccine decision-making. [10,11] Because of low coverage rates, the Centers for Disease Control and Prevention (CDC) partnered with several medical organizations (e.g., American Academy of Pediatricians, American Academy of Family Physicians) encouraging providers to routinely and strongly recommend the vaccine to parents of adolescents ages 11–12. Their 2014 “Dear colleague letter” campaign explained that “what you say matters; how you say it matters even more.”[12] However, it is not currently known *how* providers make HPV recommendations or *what* constitutes a strong recommendation. Consequently, communication standards for HPV vaccine recommendation have not been developed.

Better characterization of provider HPV vaccine recommendations is needed to understand how communication behaviors impact parental decision-making, and to identify potential interventions to improve providers’ communication skills. Patient and provider reports about their communications are not the ideal assessment method due to recall and social desirability biases.[13] Few studies have directly observed and analyzed parent-provider immunization discussions; most have focused on infants and toddlers[14–16] and only one on adolescent immunization.[17] Opel and colleagues found that the linguistic format in which providers introduced infant immunization discussions impacted parents’ reaction to

vaccine recommendations.[14,15] Specifically, parents were less resistant to vaccines when providers used a presumptive style to initiate vaccine discussions (presuming parents would decide in favor of the vaccine) than a participatory style (allowing for leeway in the parent's decision).[15] To date, we are unaware of any studies examining providers use presumptive or participatory styles to initiate HPV vaccine discussions with parents, or whether styles differ among the recommended adolescent vaccines (HPV; meningococcal; tetanus, diphtheria, acellular pertussis [TDAP]). Further, while studies show that individuals reporting a provider recommendation are more likely to get immunized,[11,18] we do not know whether or how the strength, linguistic style, or content of the recommendation impact HPV vaccine uptake. For example, research on powerful versus powerless communication suggest that statements with hedges, qualifiers, and indirect speech (i.e., third person, passive voice) is often seen as less persuasive and the speaker's attitude toward the proposed action unclear.[19,20] While a recommendation can be too strong and create psychological reactance,[21] research on powerful versus powerless language suggests that more direct recommendations for vaccination would be stronger than those with powerless linguistic features. Collectively, these forms of speech could have a significant effect on the importance or urgency for the HPV vaccine perceived by parents that in turn influences parental acceptance of the recommendation.

The purpose of this study was two-fold. First, building on work by Opel and colleagues on linguistic format of vaccine discussions [14,15] and sociolinguistic work on powerful/powerless communication styles,[19,20] we developed a coding tool to characterize the strength and content of physician HPV vaccine recommendations. Second, we refined our tool on a pilot sample of 43 HPV vaccine discussions between parents and providers. Our coding tool and analysis specifically focused on provider HPV vaccine recommendation practices in pediatric safety-net clinics by (Aim 1) characterizing type (presumptive or participatory) and strength of provider recommendation, (Aim 2) describing the content of provider communication about the HPV vaccine (qualifications and rationales), and (Aim 3) exploring whether provider communication practices were associated with vaccine uptake.

2. Methods

2.1. Study Setting and Participants

This observational study of adolescent clinic visits was conducted in Parkland Health & Hospital System. Parkland is the safety-net system for Dallas County, the 9th largest and one of the most ethnically diverse counties in the U.S. We identified six of the 21 Parkland neighborhood- and school-based clinics with the largest adolescent patient volume. All clinics use Epic electronic health record (EHR; Verona, WI), participate in the *Vaccines for Children* Program providing free/reduced price vaccines, and have a standing delegation order policy offering all recommended vaccines at preventive, acute, and nurse-only visits.

Clinical team members (physicians, advanced practitioners, and nurses) were recruited during staff meetings at the six sites during which principal investigators reviewed the protocol and asked for informed consent to audio-record patient encounters. The consent rate was 100% of clinical members.

We used the EHR to identify unvaccinated adolescents aged 11–17 with upcoming appointments at any of the six clinics between July 2014 and May 2015. Nurse only-visits were excluded. Invitation letters were sent 14 to 21 days before an appointment. Within 7 days, bilingual research staff called parents to ascertain interest and screen for eligibility. To be eligible, parents had to confirm that their child had not initiated the HPV vaccine series and they were undecided about the vaccine. We selected these parents as it was likely that providers would make a recommendation and engage in an HPV vaccine discussion during the upcoming visit. Additional criteria to be eligible for analysis are described in 2.3.

2.2. Data Collection

If the eligible parent agreed to participate, consent was obtained and a baseline survey, assessing parental knowledge and attitudes about HPV vaccination, was telephone administered (details in [22]). We sent letters to 666 parents, 11% had wrong contact information, 18% were unreachable, 38% were ineligible because the adolescent had started the HPV vaccine series (6%) or the parent had made a decision for or against the vaccine (32%), and 11% were uninterested. Of the remaining 92 eligible parents who consented, 37 were lost to follow-up (unfinished baseline survey, cancelled appointment or withdrew) and 55 completed all study procedures.

Research staff met parents 20 minutes before the visit to review study procedures and obtain adolescent assent. Participating parents received \$25 gift cards. University of Texas Southwestern Medical Center's Institutional Review Board approved this study (STU 022013-016).

When the parent and child were brought to an exam room, research staff started an audio-recorder and immediately left the room. The recorder remained on for the visit duration.

We used the EHR to assess HPV vaccine administration during the visit.

2.3. Coding Tool Development and Data Analysis

To develop the tool, we used a directed qualitative content analysis approach guided by Opel et al.'s [14,15] and Street et al.'s [23–25] work. This approach was iterative and included both inductive and deductive *a priori* codes. We used the utterance (i.e., oral analogue of a simple sentence) as our basic unit of analysis.

Staff reviewed audio-recordings and marked time periods when a provider was talking with the parent-child dyad. A professional transcription service transcribed all marked interactions in the original language (Spanish or English) to preserve the original communication. Bilingual staff reviewed transcripts and marked the start and end points of immunization discussions. Only these marked sections were analyzed. We were unable to capture interactions between nurses and parents outside of the exam room, so we did not code discussions between nurses and parents.

Because this analysis focused on provider recommendation practices; we excluded recordings in which a nurse administered the vaccine before the provider entered the room (i.e., provider had no opportunity to discuss the HPV vaccine) or if the provider contributed

only one recording [23–26]. If an interpreter was present, we coded statements made by the interpreter, not the provider, as those were the statements likely to be understood and influence parents' decisions.

2.3.1. Deductive coding for provider recommendation type (Aim 1)—Using Opel et al.'s [14,15] coding definitions, we first categorized all visits as having either a presumptive or participatory introduction to the HPV vaccine and/or other vaccines. Then, guided by Street et al. [23–25] and others [19,20] on powerful/powerless language, we divided those with participatory introductions by the strength of the HPV recommendation (strong versus weak). Table 1 provides a definition and exemplar quotes for each deductive code.

Based on prior work,[14,15,23–25] we also created a mutually exclusive summative recommendation code because the overall organization of the conversation may influence the desired action of the recommendation (e.g., parental acceptance). All discussions beginning with a presumptive introduction were coded as presumptive. If all utterances about recommendations were coded as strong, then the summative code was strong. If a combination of weak and strong codes were applied, then the overall evaluation was mixed. If only weak codes were selected, then the summative code was weak. If neither strong nor weak recommendation codes were applied, then the summative code was no recommendation.

Deductive Coding Procedures: Using the codebook, investigators conducted a 1.5 day training with bilingual staff. Coders listened to the audio-recording while following the transcript, and applied codes using NVivo 9.0 (QSR, Australia). Investigators met periodically with coders to build consensus, update the codebook, and resolve questions. Five transcripts were reviewed as a group for training. All transcripts were double-coded and intra-class correlations (ICCs) were calculated to evaluate inter-rater reliability. ICC estimates ranged from 0.82 to 0.90 across coding pairs. Once coding was complete, investigators (JAT, LAS, EM, RH) aggregated the data to report frequencies of each recommendation type.

2.3.2. Inductive coding for content of provider communication (Aim 2)—To characterize content of provider communication about HPV vaccinations, we used a thematic analysis approach[27,28]. Four investigators (JAT, EM, LAS, RH) read through transcripts and jointly identified areas in which providers (a) tempered their recommendations with qualifications, or (b) supported their recommendations with rationales. Two investigators (EM and LAS) created a preliminary codebook of qualifications and rationales, applied it on a sample of transcripts (n=5), revised it as additional codes emerged, and trained bilingual staff who coded the remaining transcripts. Investigators then reorganized the codes into categories and explored emerging themes. Initial interpretations were presented to all authors to discuss alternative perceptions and reduce potential bias.

2.3.3. Explore provider communication practices and HPV vaccine initiation (Aim 3)—For both deductive and inductive codes, we used counts to describe their

frequency [14,15,23–25]. Then, we calculated percentage of participants vaccinated (numerator) among all participants who received that provider communication code (denominator). We also reported patient demographics by vaccine status to facilitate comparison with other studies.

3. Results

3.1. Participant characteristics

Fifty-five parents completed all study procedures. After excluding one because a recorder malfunctioned, three because their provider only contributed one recording, and eight because the child was vaccinated before talking with the provider, the final analytic sample was 43. Table 2 describes their sociodemographic characteristics and vaccine status. Average adolescent age was 12.6 years; 45% were female. Most (72%) were Hispanic; 28% were Black. All 43 parents were female. Two-thirds (n=27) of visits were conducted in Spanish, nine of them with an interpreter. Providers spent an average of 21.8 (range = 8 to 41) minutes with patients, and all visits included some discussion of immunizations (mean 5.5 minutes, range = 0.5 to 29). The 29-minute immunization discussion was an exception in which the parent asked several questions about side effects; the next longest discussion was thirteen minutes.

3.2. Type of HPV vaccine recommendation (Aim 1)

Only one visit (2%) had a presumptive introduction to the HPV vaccine recommendation in which the provider bundled the HPV vaccine with other recommended vaccines and assumed parental acceptance. In the other 42 visits (98%), providers used a participatory introduction style for the HPV vaccine. In contrast, a presumptive style was used in all of the 15 visits (100%) in which TDAP and meningococcal vaccines were due and recommended.

In terms of the summative code, eleven visits (26%) included only strong recommendations (clear, emphatic, personally-owned; Table 1), sixteen (37%) included only weak recommendations (third person, passive voice, or with a qualification), and eight (19%) had both strong and weak recommendations (Table 3). Seven (16%) visits did not have any type of HPV recommendation (e.g., “*Let me see here on her shots, so she’s going to get the regular 11-year-old shots like the meningitis, tetanus booster and then we have flu shot today if you want that and then also do you know about the HPV?*”) Table 1 shows examples of other types of recommendations.

3.3. Content of providers’ HPV vaccine discussions (Aim 2)

Here, we describe our inductive coding results on the content of provider HPV communication. First, we describe ways in which providers qualified their recommendation and then the rationales given. Throughout, frequencies describe prevalence of each communication code.

3.3.1. Ways Providers Qualified Their Recommendation—To better understand how providers tempered their recommendations, we inductively coded the types of qualifications. Over half of the visits included some qualification to the HPV vaccine

recommendation (n=24; 56%). Qualifications generally fell into one of three categories: (1) emphasizing parental choice whether the child receives the HPV vaccine, (2) advising parents that HPV vaccine is not required for school, or (3) explaining it is not necessary to vaccinate today (Table 4 reports exemplar quotes).

The most common qualification was provider statements that the HPV vaccine is optional and at the parent's discretion (n=16; 37%). For example:

That becomes a personal decision for these. These are optional vaccines...So it's up to you if you get that.

In 35% of visits (n=15), providers separated the HPV vaccine recommendation from other recommended vaccines:

The ones that the school is going to require for sure is your TDAP and your meningococcal. The HPV, the school is not requiring but we are offering to you.

In eleven visits (26%), providers signaled that parents have the option to delay:

...if you still want to think about it, that's fine and we'll just defer it today.

Other observed, but less common qualifications included introducing myths about the vaccine (*A lot of time parents think it might cause infertility*) or fears of other parents (*They were afraid because it's a new vaccine*). We also observed that some providers hedged about vaccine safety (*Well as of right now, as far as I know, it is safe you know*) or suggested questions about side effects (*Do you have any questions about side effects or...?*).

3.3.2. Rationales given for the HPV vaccine—We hypothesized that rationales or reasons immediately adjacent to a recommendation may be more powerful.[19,20,29] In 88% of visits (n=38) providers gave one or more reasons to get the HPV vaccine. Overall, eighteen encounters (42%) had rationales immediately adjacent to the recommendation. The three most common rationales focused on cancer prevention, the logic for vaccinating during adolescence, and why vaccinate during current visit.

Cancer prevention was the most frequent rationale (n=34; 79%):

This virus is a cancer causing virus so if you are exposed, there is a chance that it's going to trigger a reaction on your skin that will develop cancer.

While some providers mentioned female-specific cancers (*It's a vaccine that prevents cervical cancer in women in the future*), others highlighted reasons why the vaccine is recommended for both girls and boys:

... we were just doing the girls because that's kind of where we see it, but we also know that boys can have warts. They can have penile cancer and it protects their wives in the future...

In 25 encounters (58%), providers explained that parents should get their child vaccinated during early adolescence:

... it's better to have it way ahead of time... especially the preteens or young teenagers because who knows what's going to happen in the future, once you pick up this virus, it's too late to get the vaccine afterwards.

Some providers argued against delaying the decision and urged parents to start at the current visit:

She's always been vaccinated so I don't see any reason that we need to postpone it... If you're interested we can go ahead and get started today.

Another way provider stressed why this visit was the optimal time: *I really recommend it now because the sooner you get it the more immunity you start to build up.* In one encounter, the provider emphasized why it is important for minority girls to vaccinate:

... cervical cancer was something that was pretty prevalent among African American and Hispanic women and so that vaccine has really helped decrease the risk of cervical cancer.

As shown above, providers used lay terms and plain language to ensure understandability of rationales to safety-net parents.

3.4. Provider Recommendation Practices by HPV Vaccination (Aim 3)

Over half (56%; n=24) of the adolescents received the first HPV dose during the visit. Table 3 lists percentages of adolescents who received first dose by each communication code. Patterns suggest a potential relationship between recommendation type and vaccine receipt that should be further investigated in a study powered for quantitative testing. In our sample, among visits with a participatory style, vaccination was highest when providers used all strong recommendations (64%), or a participatory style with a combination of strong and weak recommendations (62%; Table 3). In visits with only weak recommendations, 44% of adolescents received the HPV vaccine.

For visits including qualifications of the HPV recommendation, the pattern suggests lower rates of HPV vaccination. When providers said that it was not necessary to do today and emphasized parental choice, only 27% and 38%, respectively were vaccinated. In contrast, when providers coupled their recommendation with an adjacent rationale, 72% of adolescents received the HPV vaccine.

4. Discussion and Conclusion

4.1. Discussion

Using audio-recordings of pediatric visits, we developed and piloted a coding tool for provider HPV vaccine recommendations. While a few studies directly observed patient-provider communication for infant and toddler vaccines, this is the first study to characterize strong and weak HPV vaccine recommendations. Further, we provide initial evidence for how providers' use of qualifications may render their communication efforts less influential, while inclusion of rationales may help persuade parents to accept the HPV vaccine and not delay their decision. Our study builds on Opel and colleagues' work [14–16] by not only categorizing recommendations as presumptive or participatory, but also further classifying

the linguistic style of participatory recommendations as either strong, supported recommendations or weak, qualified recommendations. Furthermore, while we mainly focused on HPV vaccine discussions, our coding process, of categorizing type and strength of recommendation through a thematic analytic approach of qualifications and rationales, could be applied to other vaccine discussions.

In our small sample, we saw only one instance of presumptive introduction for the HPV vaccine, despite the vaccine having guideline-approval [30] and suggestions by clinical organizations to bundle it with other adolescent vaccines.[12] Notably, this contrasts with the way providers introduce other vaccines, where we found that presumptive style was used for meningococcal and TDAP 100% of the time and Opel et al. found presumptive introductions used for infant immunizations 74% of the time [15]. We also found that providers frequently qualified their HPV vaccine recommendation, by emphasizing that it was not required for school, indicating that the vaccine could be postponed, or highlighting that the vaccine decision was ultimately the parent's choice. Our preliminary findings suggest that qualifications, particularly the latter two, may have undercut recommendation strength and led parents to believe that the HPV vaccine is not important or urgent to do during early adolescence. We found a much lower percentage of visits including one of these two qualifications ended with the child vaccinated. While our pilot study was not powered to test for statistical significance, this finding parallels communication research on powerless language,[19] and is consistent with a recent study by Meers et al.[31] They interviewed vaccine-hesitant parents after a clinic visit and found parents who decided against HPV vaccination described their provider's recommendation as being a suggestion (participatory format) and included the caveat that the decision could be postponed.

These findings are consistent with a recent environmental scan of providers in Texas that found that many were unaware that the CDC advises that HPV vaccine recommendations be "bundled" with other adolescent vaccine recommendations, (i.e. TDAP and meningococcal) and that some providers felt ethically obligated to inform parents that the HPV vaccine was not required for school attendance and is therefore optional [32]. This may also point to a perceived tension between informed decision making (i.e. providers acknowledge that patients/parents have a choice and information must be given to parents in an understandable format) and evidence-based medicine and public health goals (i.e. guidelines state that evidence supporting the HPV vaccine is unequivocal and encourage routine vaccine administration to prevent HPV-related cancers). Several recent studies, however, have suggested that providers may overestimate the level of parental concern or hesitation about vaccines [33] and therefore may be unnecessarily diluting their recommendation with caveats and disclaimers. Providers may benefit from research-based education about parental attitudes and from communication training on how to ethically and effectively use persuasion to inform parents and work towards public health goals.[34]

In our pilot study, over 40% of recorded visits included at least one strong, direct HPV vaccine recommendation and these visits trended towards having higher vaccination rates. Additionally, many providers gave rationales to support their HPV vaccine recommendation. Rationales given immediately adjacent to the recommendation seemed to be particularly persuasive, as almost three-quarters of these visits ended with the child receiving the HPV

vaccine. Future studies should follow-up by examining whether *specific* rationales are more persuasive than others and the optimal proximity of these rationales to the actual recommendation.

Because this study was focused on characterizing provider recommendation practices, we did not examine nurses', parents', and adolescents' communications. This is a limitation and future research should develop tools to code and analyze their communication efforts in HPV vaccine discussions. Nurses likely play a key role as we excluded eight visits because the child received the vaccine after seeing the nurse. Similarly, parental response during medical encounters is important [24,25,35] and some of the qualifications by providers may have been prompted by non-verbal cues (not captured by audio-recordings) or concerns expressed by parents. Parental exposure to the baseline survey could have served as a 'Hawthorne' effect and influenced their HPV vaccine decisions (see [36] for systematic review on this topic). Thus, the pattern of exchange between provider and parent about HPV vaccination is a key area for further study.

Our setting was safety-net clinics which primarily serve low income, less educated, publicly insured Hispanics and African Americans;[37–39] thus, findings may not generalize to Caucasian and privately insured populations in the U.S. and countries with organized, school-based systems to deliver vaccines. Future research with larger samples should explore whether provider recommendation practices differ by adolescent demographic characteristics, language(s) spoken during the encounter, and use of an interpreter.

4.2. Conclusion

A provider recommendation is a known facilitator of HPV vaccination.[10,11] In the context of infant immunizations, providers' style of introducing their recommendation influences vaccine uptake.[15] This study is the first to show that providers are recommending the HPV vaccine differently than other adolescent vaccines. Further, we developed a tool for categorizing type and strength of HPV vaccine recommendations as well as the qualifications and rationales given by providers. Future observational studies should validate our tool with larger samples in different clinical settings and examine whether providers' linguistic style influences parental acceptance of the HPV vaccine.

4.3. Practice Implications

Our preliminary findings suggest direct, personally-owned recommendations for the HPV vaccine may help persuade parents to vaccinate. Additionally, recommendations may have the greatest impact when coupled with a rationale and when they are not undercut with qualifications about the vaccine not being required or urgent. If findings are replicated by other observational studies, our tool could be used to evaluate whether interventions building providers' communication skills improve the strength of their HPV vaccine recommendations and raise provider awareness of how they may unknowingly weaken their recommendations through powerless forms of speech. These efforts are critical to maximize the HPV vaccine's impact and reduce HPV-related cancer incidence and disparities in the future.

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Abbreviations

CDC	Centers for Disease Control and Prevention
EHR	electronic health record
HPV	human papillomavirus
RA	research assistant
TDAP	tetanus, diphtheria, acellular pertussis
VFC	Vaccines for Children

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Highlights

- Used audio-recorded visits to characterize strength of provider HPV vaccine recommendations
- Most providers gave weak recommendations (used passive voice, added qualifications)
- Qualifications to HPV vaccine recommendation included not school-required, not necessary today, optional
- HPV vaccine rationales focused on cancer prevention and timing during early adolescence

Table 1

Deductive Codes for Type of Provider Recommendation and Exemplar Quotes

Codes	Definition	Exemplar quotes
Presumptive Introduction	Provider introduced the topic of vaccinations by presuming the parent was going to decide to get the HPV vaccine, even if the statement includes a question of parental agreement. We also noted if a presumptive introduction was used for other recommended vaccines (meningococcal and TDAP).	Doctor: <i>¿Estás de acuerdo con las tres vacunas que necesita?</i> (Are you in agreement with the 3 vaccines s/he needs?) Doctor: Alright so the last thing is the vaccine. So the normal vaccines that you get at age 11 that are required for school are the TDAP and the meningitis shot so she'll get those today and then at age 11 we start offering the HPV vaccine, which is the human papilloma virus vaccine and that one is not required, it's just highly recommended. (Example of presumptive introduction for other adolescent vaccines and not HPV vaccine.)
Participatory Introduction	Provider introduced the HPV vaccine discussion by giving parents leeway in their decision (e.g., offering it, asking whether parent was interested in the vaccine, or assuming parental resistance).	Doctor: Let me see here on her shots, so she's going to get the regular 11-year-old shots like the meningitis, tetanus booster and then we have flu shot today if you want that and then also do you know about the HPV? Mother: Uh-huh. Doctor: Okay. Are you interested in that one? Mother: Not right now. Doctor: Okay, all right. So we'll just do the regular stuff today. Doctor: <i>¿Tiene la tarjeta de las vacunas?</i> (Do you have the vaccines card?) Parent: <i>Sí</i> . (Yes.) Doctor: <i>¿Quiere la vacuna para papiloma?</i> (Do you want the papilloma vaccine?) Parent: <i>No</i> . (No.) Doctor: <i>¿No quiere?</i> (You don't want it?) Parent: <i>No</i> . (No.) [Doctor goes on to next subject.]
Strong Recommendation	The provider's words or tone clearly suggested that the parent should get the HPV vaccine for their adolescent. Ownership of the recommendation was conveyed by use of personal pronouns ("I" or "we") and adverb/verb choice ("highly recommend").	I do recommend it for all my teenagers. So we highly recommend it. <i>La recomendamos muchísimo</i> . (We highly recommend it [the vaccine]).
Weak Recommendation	Recommendation was worded in the third person, in passive voice, or was coupled with a qualification (e.g., disclaimer or reason for opting out).	We give you the information and tell you it's highly recommended you get it, but it's not mandatory for school enrollment at this point. <i>Hay otra vacuna que es muy importante, pero es opcional. No es obligatoria</i> . (There's another vaccine that is very important, but it's optional. It's not required.)

Table 2

Sociodemographic characteristics of invited pediatric safety-net clinic patients who did not participate, analyzed participants and their HPV vaccine status post-visit, Dallas, Texas (N = 666)

Characteristic	Invited Patients who did not participate N=611 n (%)	Analyzed Participants N = 43* n (%)	Participants Vaccinated During Visit N = 43 n (%)
Adolescent Age			
11–12	304 (49.8%)	28 (65.1%)	15/28 (53.6%)
13–14	140 (22.9%)	10 (23.3%)	5/10 (50.0%)
15–17	167 (27.3%)	5 (11.6%)	4/5 (80.0%)
Adolescent Sex			
Female	293 (48.0%)	18 (41.9%)	14/18 (77.8%)
Male	318 (52.0%)	25 (58.1%)	10/25 (40.0%)
Race/ethnicity			
Hispanic	407 (66.6%)	31 (72.1%)	17/31 (54.8%)
Non-Hispanic Black	178 (29.2%)	12 (27.9%)	7/12 (58.3%)
Non-Hispanic White/Other	26 (04.0%)	--	--
Preferred language			
English	286 (46.4%)	15 (34.9%)	10/15 (66.7%)
Spanish	325 (53.5%)	28 (65.1%)	14/28 (50.0%)
Clinic			
Clinic 1	123 (20.2%)	13 (30.2%)	9/13 (69.2%)
Clinic 2	169 (27.2%)	12 (27.9%)	6/12 (50.0%)
Clinic 3	252 (41.4%)	16 (37.2%)	9/16 (56.3%)
Clinic 4	67 (11.1%)	2 (4.7%)	0/2 (0.0%)

* 12 of the 55 audio-recorded visits were excluded from this analysis. 1 because an audio recorder malfunctioned, 3 because their provider only contributed 1 audio-recording, and 8 because the child received the vaccine before talking with the provider.

Table 3

HPV vaccine initiation status by provider HPV vaccine communication codes applied to audio-recordings of discussions between providers, parents, and adolescents attending safety-net clinics (n = 43)

Provider Codes	Occurred during visit n (% of 43 encounters)	Received HPV vaccine during visit n (% with code)
Type of Provider Recommendation (summative)		
Presumptive Introduction	1 (2.3%)	1 (100%)
Participatory Introduction/No Recommendation	7 (16.3%)	4/7 (57.1%)
Strong Recommendation	11 (25.6%)	7/11 (63.6%)
Mix of Strong and Weak Recommendations	8 (18.6%)	5/8 (62.5%)
Weak, Qualified Recommendation	16 (37.2%)	7/16 (43.8%)
Qualifications of recommendation		
Not mandatory for school	15 (34.9%)	9/15 (60.0%)
Not necessary to do today	11 (25.6%)	3/11 (27.3%)
Parental choice/optional	16 (37.2%)	6/16 (37.5%)
Other qualifications	7 (16.3%)	2/7 (28.6%)
Provider given reasons for HPV vaccine		
Cancer-specific reason	34 (79.1%)	19/34 (55.9%)
Vaccinate during adolescence reason	25 (58.1%)	14/25 (56.0%)
Vaccinate today reason	2 (4.7%)	2/2 (100.0%)
Other reasons	14 (32.6%)	9/14 (64.3%)
Rationale adjacent to provider recommendation	18 (41.9%)	13/18 (72.2%)

Table 4

Illustrative quotes of the ways in which providers qualified their recommendations and gave rationales for the HPV vaccine

Qualifications	
Not required for school	<p>So it's highly recommended for him to get but it's not required for school.</p> <p>The ones that the school is going to require for sure is your TDAP and your meningococcal. The HPV, the school is not requiring but we are offering to you.</p> <p>The ones required for school are the TDAP and the meningitis. Those he can get today. At age 11 we also start offering the HPV vaccine, which is the human papilloma vaccine and that one is a series of three shots that you get over the course of six months.</p> <p><i>No es algo que necesite para la escuela, pero es algo súper importante para su salud.</i> (It's not something that s/he needs for school, but it's something very important for his/her health.)</p>
Not necessary to do today	<p>Well I'll kind of give you the spiel here and at the end of it if you still want to think about it, that's fine and we'll just defer it today.</p> <p>It's up to you and your mom, you know, if you want to take the shot right now or if you want to get it later...Most people want to wait until later on until you got a bit older you know and you've had your period.</p> <p><i>¿Otro año? ¿Sí? ¿A lo mejor? Le doy información sobre las vacunas. You decide.</i> (Another year? Yes? Hopefully? I'll give you information about the vaccines. You decide.)</p> <p><i>Pero si quieres esperar, está bien conmigo, pero cada año que regresa para su físico, voy a preguntar otra vez.</i> (But if you want to wait, it's ok with me, but every year that you come back for his/her physical, I'm going to ask again.)</p>
Parental choice/options	<p>So yeah, that becomes a personal decision for these. These are optional vaccines...So it's up to you if you get that.</p> <p><i>La otra vacuna que es opcional, es la vacuna de la HPV.</i> (The other vaccine that's optional, it's the vaccine for HPV.)</p> <p>It's up to you. It's your decision.</p> <p>That's the way I see it, but like I say we give you the options, it's your call, you know. If you said yes, I'll write it and if you say no, I still write it, but we defer it, you know, but it's up to you. Vaccine- let me see what else you need.</p> <p><i>Si le gusta, podemos poner la vacuna. Si quiere esperar, si quiere pensar más, podemos poner otro día. Lo que usted prefiera.</i> (If you want, we can give the vaccine. If you want to wait, if you want to think more, we can give it another day. Whatever you prefer.)</p> <p><i>Pero esa es decisión de ustedes, y si necesitan más información, pues no sé qué tanta información tengan, o si tengan dudas de la vacuna se le puede dar más información.</i> (But it's your decision, and if you need more information, well I don't know how much information you have, or if you have doubts about the vaccine we can you give more information.)</p>
Other reasons for opting out	<p>A lot of time parents think it might cause infertility or things like that, but that's a myth and it does not cause that. Some [parents] feel that if they do the vaccine, they are giving permission to have sex.</p> <p><i>Yo le recomiendo que se la ponga. Yo se la recomiendo. Como ella ya tiene catorce añitos y estaba esperando que le viniera la regla, ya le vino su regla. Y acuérdesse que es para el futuro.</i> (I recommend that she get it. I recommend it for her. Because she is already 14 years old and you were waiting for her to get her period; her period has already come. And remember that it's for the future.)</p>
Most Common Rationales	
Cancer-specific reason	<p>This virus is a cancer causing virus so if you are exposed, there is a chance that it's going to trigger a reaction on your skin that will develop cancer.</p> <p><i>Creo que es muy importante protegerlos ahora contra un virus que puede producir cáncer cuando ya están más grandes.</i> (I think it's very important to protect them now against a virus that can cause cancer when they're older.)</p>
Reason for vaccinating during adolescence	<p>So it's a good thing to have and it's better to have it way ahead of time... We do encourage it at some point in the younger children, especially the preteens or young teenagers because who knows what's going to happen in the future, once you pick up this virus, it's too late to get the vaccine afterwards.</p> <p>We give it early because the kid's immune system is able to build up a better response to the vaccine earlier.</p> <p><i>Nosotros la recomendamos mucho en la edad temprana como ellos porque son niños todavía...porque cuando se le dan las tres dosis, cuando se termina ya han desarrollada una defensa bastante fuerte contra ese virus.</i> (We strongly recommend it at a young age like they are because they're still children...because when they're given the 3 doses, when it's finished they already have developed a strong enough defense against that virus.)</p> <p><i>Se la damos entre 11 años a 26 años, pero lo más temprano que se la demos es más efectiva.</i> (We give it between 11 years and 26 years, but the earlier we give it to her the more effective it is.)</p>
Reason for vaccinating during current visit (today)	<p>I mean she got the other two vaccines already. She's always been vaccinated so I don't see any reason that we need to postpone it. It's not, I just don't see a reason that we need to postpone it. If you're interested we can go ahead and get started today.</p> <p><i>De todos modos pienso que es bueno que le pongan sus vacunas, si no ha tenido fiebre recientemente, ya sea en la mañana o anoche. Entonces, yo creo que está bien para que así ya esté protegido, a partir de adelante, y esté al corriente.</i> (In any case I think it's good that s/he get his/her vaccines, if s/he hasn't had fever recently, whether in the morning or last night. So, I think that it's good so that way s/he is already protected, from now on, and s/he is up to date.)</p>

	<i>Ahorita, pues aprovechando que vienes al seguimiento del asma, pues podemos darte la primera [dosis] para que de una vez ya la empieces [el serie], OK?</i> (Now, well taking advantage of you are coming for asthma follow-up, well we could give you the first [dose] so that at the same time you also start it [the series] already. OK?)
Other reason	<p>I really recommend it now because the sooner you get it the more immunity you start to build up.</p> <p>It's an STD and so people pass it back and forth and so I recommend it for boys and for girls for that reason.</p> <p>It helps to prevent genital warts.</p> <p>So, you know what? For my girls, they're gonna get the vaccine too. You know, I hope that they're gonna be with something that's not somebody that's slept with a lot of people, either, but to protect them, just because you never know, I think it's a really good idea.</p> <p><i>Suponga que más adelante se encuentra un novio, decide casarse, y resulta que el novio ya ha estado con alguien más. Y entonces supóngale que tiene el HPV. ¿Qué va a pasar? Se lo va a pasar a ella, aunque ella no tenga nada que ver con eso [tener relaciones antes de casarse].</i> (Suppose that down the road she finds a boyfriend, decides to get married, and it turns out that boyfriend has been with someone else already. And then suppose he has HPV.</p> <p>What's going to happen? He's going to pass it to her, although she has nothing to do with that [premarital sex].)</p> <p><i>Es una vacuna que le va a dar muchos beneficios – lo vacuna ahorita y le va a proteger cuando ya esté más grande, cuando sea un adulto. Y es igual como cualquier otra vacuna. Le proporciona beneficios, prepara nuestro cuerpo para desarrollar anticuerpos en contra de este tipo de infección, y le ayuda a protegerse.</i> (It's a vaccine that gives you a lot of benefits – you vaccinate him now and it's going to protect him when he's older, when he's an adult.</p> <p>And it's the same as any other vaccine. It provides benefits, prepares our body to develop antibodies against this type of infection, and it helps protect him.)</p>