1-31-2014

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Recommended Citation

Pamela C. Hull, Elizabeth A. Williams, Dineo Khabele, Candace Dean, Brea Bond, Maureen Sanderson, "HPV vaccine use among African American girls: Qualitative formative research using a participatory social marketing approach", Gynecologic Oncology, Volume 132, Supplement 1, 2014, Pages S13-S20, ISSN 0090-8258, https://doi.org/10.1016/j.ygyno.2014.01.046.

Published in final edited form as:
Gynecol Oncol. 2014 March ; 132(0 1): S13–S20. doi:10.1016/j.ygyno.2014.01.046.

HPV Vaccine Use among African American Girls: Qualitative Formative Research using a Participatory Social Marketing Approach

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Abstract

OBJECTIVE—To generate recommendations for framing messages to promote HPV vaccination, specifically for African American adolescents and their parents who have not yet made a decision about the vaccine (the "Undecided" market segment).

METHODS—Focus groups and interviews were conducted with African American girls ages 11–18 (N=34) and their mothers (N=31), broken into market segments based on daughter's vaccination status and mother's intent to vaccinate.

RESULTS—Findings suggested that the HPV vaccine should be presented to "Undecided" mothers and adolescents as a routine vaccine (just like other vaccines) that helps prevent cancer. Within the "Undecided" segment, we identified two sub-segments based on barriers to HPV vaccination and degree of reluctance. The "Undecided/Ready If Offered" segment would easily accept HPV vaccine if given the opportunity, with basic information and a healthcare provider recommendation. The "Undecided/Skeptical" segment would need more in-depth information to allay concerns about vaccine safety, mistrust of drug companies, and recommended age. Some mothers and girls had the erroneous perception that girls do not need the vaccine until they

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CONFLICT OF INTEREST STATEMENT
The authors have no relevant financial interests to disclose.

become sexually active. African American adolescents and their mothers overwhelmingly thought campaigns should target both girls and boys for HPV vaccination. In addition, campaigns and messages may need to be tailored for pre-teens (ages 9–12) versus teens (ages 13–18) and their parents.

CONCLUSIONS—Findings pointed to the need to "normalize" the perception of HPV vaccine as just another routine vaccine (e.g., part of pre-teen vaccine package). Findings can inform social marketing campaigns targeting Undecided or ethnically diverse families.

Keywords

HPV vaccine; African Americans; social marketing; formative research

INTRODUCTION

African American women have higher rates of cervical cancer incidence and mortality than white women, despite widespread cervical cancer screening in the United States (1–3). In 2010, the age-adjusted incidence of cervical cancer was 6.5/100,000 for White women compared to 8.1/100,000 for African American women. Mortality rates (per 100,000 women) were 2.1 and 3.9, and overall 5-year survival for all stages of cervical cancer was 71% and 63% for White women and African American women, respectively (2). Persistent infection with genital human papillomavirus (HPV) types 16 and 18 causes 70% of cervical cancers (4) and 86–95% of HPV-associated cancers of the oropharynx, anus, vagina, vulva and penis (5,6). Since 2006, the FDA has approved two prophylactics for females to prevent infection with HPV-16/18, and in 2010, one of them was also approved for use in males. These vaccines are nearly 100% efficacious in preventing HPV-16/18 associated cervical, vaginal, and vulvar precancers in women and highly efficacious for preventing penile precancers in men (6–8). Thus, HPV vaccination is an important strategy to lower mortality from cervical cancer and other HPV-associated cancers.

The Centers for Disease Control and Prevention (CDC) and the Advisory Committee on Immunization Practices recommend routine HPV vaccination for females and, also since 2011, for males at 11 or 12 years of age, as well as "catch-up" vaccination of up to the age of 26 years (females) and 21 years (males) (9,10). HPV vaccine consists of three doses across six months and is available for free to all adolescents ages 9 through 18 under private insurance, Medicaid and/or the Vaccines for Children (VFC) program. As of 2011, 53.3% of girls and 8.3% of boys aged 13–17 years in the U.S. started the HPV vaccine series, while only 34.8% of girls and 1.8% of boys completed all three doses (11). In addition, HPV vaccine-series completion was lower among African American girls than white girls, with 60.8% versus 74.8% completion among girls who started the series more than 6 months prior to the interview date (reliable completion data by race are not available for boys). Another study found that white adolescents were twice as likely to complete the vaccination schedule on time compared with their African American counterparts, and adolescents with private insurance were 31% more likely compared to those with public insurance (12).

According to Dissemination of Innovations Theory (13), new innovations (e.g., new vaccines) are typically adopted by and benefit socially advantaged groups more rapidly. In other words, over time, increases in full utilization of HPV vaccine and declines in cervical cancer incidence and mortality will likely be faster among white women compared to African American women, potentially widening disparities in cervical cancer. The challenge is to design behavioral interventions that encourage vaccination, in particular among groups with lower vaccine completion rates.

Bryant and colleagues (14) developed the innovative Community-Based Participatory Marketing (CBPM) model, which combines community-based participatory research (CBPR) approaches with social marketing theories and methods. CBPR involves forming collaborative community-academic partnerships for research aimed to identify community needs and develop and test interventions to improve these problems (15,16). Incorporating the knowledge and insights of members of the affected population in the research process offers the potential to develop more culturally appropriate and effective interventions to improve health outcomes and reduce disparities (17).

Social marketing borrows principles and strategies from traditional marketing used in the business sector to sell products and generate profits, and applies them to nonprofit programs aimed at changing knowledge, attitudes or behaviors as the "product" (18–20). Social marketing uses exchange theory, which explains that individuals make decisions about behaviors by weighing perceived costs and benefits of their different options. In the social marketing process, analytic techniques are used to conceptually divide the population into distinct audiences, or market segments, that are more likely to respond to the intervention (21). Formative research, or "audience research," uses qualitative and/or quantitative methods to develop the social marketing intervention plan and refine market segmentation, with the aim of understanding people's aspirations, values, and fears of the target population as well as their perceptions of the benefits versus costs of the target behavior (22). Social marketing is an effective approach for developing culturally-appropriate interventions since it focuses on specific target audiences and emphasizes the audience's perspective (23,24).

The key components of social marketing are often called the "4 P's." The most important "P" in social marketing is *Product*, including the "actual product" (the target behavior - HPV vaccination) and the "core product" (the benefits of the vaccine that are attractive to the target population and may convince a person to get it). Often the "core product" includes perceived non-health benefits of the behavior, such as fulfilling social or emotional needs. *Price* refers to real and perceived costs or barriers to engaging in the target behavior from the consumers' perspective and strategies to lower these costs. *Placement* involves where the target audience makes decisions about getting HPV vaccine and ways to make the service more accessible and easier to obtain. *Promotion* includes designing and delivering persuasive messages to the target audience (18).

Our team is employing the CBPM process to develop a culturally-appropriate social marketing intervention aimed at increasing HPV vaccine utilization among African American adolescents. This article reports on the qualitative findings of our formative research phase, or "audience research." The purpose of the study was to generate recommendations for framing messages to promote HPV vaccination for our target audience, specifically African American adolescents and their parents who have not yet made a decision about the vaccine (the "Undecided" market segment). Our primary research questions related to the 4 P's were: (1) Product – What benefits to vaccination do Undecided parents and adolescents perceive? (2) Price – What barriers to initiating and completing vaccination exist for the Undecided segment, and how can they be overcome? (3) Placement – Where do parents and adolescents make decisions about HPV vaccination, and how can the vaccine be made more accessible and easier to complete? and (4) Promotion – What types of messages, information channels, and spokespersons may be effective for the Undecided segment? We included both parents and daughters in the study to understand how parents and daughters negotiate decisions regarding HPV vaccination, determine whether parents or daughters should be the primary or secondary audience, and identify appropriate messaging strategies for each one.

METHODS

Academic and Community Partners

This study, affiliated with Cervical Cancer Free Tennessee, was conducted under the Community Outreach Core (COC) of the Meharry Medical College-Vanderbilt Ingram Cancer Center-Tennessee State University Cancer Partnership, in collaboration with the COC's Community Advisory Board (CAB). The CAB includes representatives from non-profit and healthcare organizations and community members interested in cancer disparities. The CAB has provided valuable input since the study began, including giving feedback on focus group and interview discussion guides, assisting with subject recruitment, and contributing to the interpretation of findings. After completing data collection, the CAB recommended forming a Teen and Parent (TAP) committee under the CAB to work specifically on this project, which met more frequently and was closely involved in the interpretation of results and the subsequent development of the social marketing strategy.

Research Design

Using a cross-sectional observational design, we collected qualitative data through focus groups and individual interviews, using convenience sampling. Focus groups and individual interviews are useful for formative research because they enable in-depth exploration of complex attitudes, beliefs, and perceptions and the ability to discover unanticipated insights (25,26). Convenience sampling is appropriate for qualitative research aimed to obtain in-depth descriptive information on a relatively small sample.

Recruitment

African American girls ages 11–18 and a parent/guardian were recruited to participate in the study. At the time the study was initiated, routine HPV vaccination was not yet recommended for males, so the sample did not include adolescent boys. CAB members helped to distribute flyers and electronic announcements about the study. Out of the 52 parents who made contact with the study, 28 heard about the study via email, nine through flyers posted in community partner organizations, five through ResearchMatch.org (an online national registry connecting researchers with people who are willing to volunteer for studies), four from a friend, one from a doctor, and five did not report the source.

Eligibility Screening

When parents contacted the study, study personnel screened families for eligibility over the phone or via email based on the parent's report of the daughter's age (11–18 years) and race (African American). If daughters met these criteria, the parent was asked the daughter's HPV vaccination status (number of shots, if any) and, if she was not vaccinated, why she had not gotten the vaccine (either "not sure if want it or have not decided yet" or "decided not to get it"). Then the family was assigned to one of the following four market segments, based on the combination of daughters' HPV vaccination status and the parent's intent to get the daughter vaccinated: 1) *Completed* – daughter received all three HPV vaccine doses, 2) *Incomplete* – daughter started HPV vaccine but did not receive all three doses, 3) *Undecided* – daughter not vaccinated and parent had not yet made a decision, and 4) *Rejected* – parent decided not to get vaccine for daughter.

Out of the 52 parents who made contact with the study, 5 did not respond to our attempts to screen for eligibility, and 3 were not eligible. Eligible families (N=44) were placed on a list to invite when we were ready to schedule focus groups or interviews. We attempted to re-contact and invite 39 families in order by date of recruitment, of whom 8 did not reply. The other 5 were not re-contacted because we closed data collection due to reaching saturation of

themes. One parent or guardian from each family was invited to take part in the study, but only mothers decided to participate. More than one eligible daughter per family could take part in the study. Three families had two eligible daughters to enroll, and the rest only had one eligible daughter.

Data Collection

Data were collected, transcribed, and analyzed in an iterative process starting with two focus groups per market segment (one for mothers and one for daughters, in separate groups), followed by individual interviews until reaching saturation of themes for mothers and for daughters within each market segment. Focus groups and interviews were conducted separately for mothers and daughters and for each market segment. As reported in Table 1, we conducted a total of eight focus groups— four with mothers, one for each market segment (N=19 mothers), and four with daughters, one for each market segment (N=21 daughters). Each focus group included 3–7 mothers or 3–9 daughters. Next, we collected additional individual interviews with mothers (N=12) and with daughters (N=13) from other recruited families, conducted separately, until reaching saturation of themes within each segment for mothers and for daughters. Individual interviews were conducted with 2–5 girls and 2–4 mothers per market segment.

Focus groups were moderated by two of the investigators at a local community organization, one moderating the group with mothers and one moderating the group with daughters in separate rooms at the same time. The same investigators subsequently conducted the interviews with mothers on campus, while two research assistants conducted separate, simultaneous interviews with daughters. The research assistants received a prior 90-minute training session on the purpose of qualitative focus groups and interviews and how to conduct them. Focus groups lasted around 90 minutes, and interviews lasted around 20–30 minutes. In the focus groups, each participant was assigned an identification number, and a notetaker made notations of which people spoke and non-verbal communication. Focus group and interview sessions were digitally recorded and transcribed. Each participant was given a $30 gift card.

Discussion Guides

With input from an external consultant expert on CBPM and from the CAB, we created separate discussion guides for parents and daughters for each market segment (eight different discussion guides) with open-ended questions that elicited information related to the “4 P’s” of social marketing: product, price, placement, and promotion (18,22). The discussion guides listed questions and possible follow-up probes to stimulate further discussion for covering topics in a flexible manner that allowed for emergence of new ideas (27). The discussion guides followed a “funnel structure,” which started with general, less structured questions and moved to more specific, more structured questions (27).

Examples of key questions included, “If a friend asked you for advice about getting the vaccine, what would you tell her? What would you say were the benefits of getting the vaccine?” (Product), “What have you heard about the disadvantages of getting vaccinated?” (Price), “Where did you hear about the vaccine?” (Placement), “What do you suggest as good ways to reach African American girls to give them information about getting the vaccine?” (Promotion). In addition, the moderator asked participants to review and react to two sample social marketing flyers about HPV vaccine, one from the CDC and one from a previous study (28). The majority of the discussion guides were similar across the four market segments, with some different questions asked relevant to the daughter’s HPV vaccination status, such as reasons for deciding to get the vaccine (Completed and Incomplete) or not (Rejected), why they had not received all three shots (Incomplete), would

they make the same decision again (Completed and Incomplete), or what could convince them to get the vaccine (Undecided). The discussion guides for daughters were similar to the discussion guides for mother, with differences in the frame of reference for the questions (e.g., referring to daughters vs. parents) and one or two unique questions for parents or daughters (e.g., parents: who do you trust to give you information about vaccinating your daughter).

Data Analysis

Four research assistants were trained during two 90 minutes sessions to code the transcript data, including how to use Atlas.ti qualitative analysis software to create and assign codes and extract quotes, review of the *a priori* themes and definitions, when and how to create codes for new emergent themes and subthemes, and practice coding under supervision. Based on the discussion guide and input from the consultant, investigators created a codebook of *a priori* themes corresponding to specific aspects of the 4 P's as an initial set of codes for analysis, and then new codes were created for themes and subthemes that emerged during analysis. Two research assistants reviewed and coded each transcript. Then, using a negotiated agreement approach to qualitative inter-coder agreement (29), the first author reviewed their coding for consistency and discussed with them any disagreements in coding, in order to reconcile which final code to use. Next the quotes for each coded theme and subtheme were extracted and reviewed again by a research assistant and the first author to assess patterns within and across market segments and to combine or split subthemes as needed. We also discussed preliminary findings with the TAP, which further informed refinement of subthemes.

This process was repeated after the focus group and each individual interview for mothers and for daughters separately within each market segment until reaching saturation of themes. Specifically, we determined that saturation was reached for mothers or for daughters within a segment when no new themes emerged during analysis of the transcripts. After coding was finalized, we extracted the quotes separately for mothers and daughters for each theme and subtheme and tallied how frequently the subthemes were mentioned by mothers or daughters within each market segment to sort them in rank order. Then the themes and subthemes were organized into tables separately for mothers and daughters in rank order of frequency, indicating which market segments mentioned each one.

RESULTS

Demographic characteristics of the sample are summarized in Table 2. The girls' ages were distributed across the range of 11 to 18 years (mean=14.5 years, S.D.=2.05), and the mothers' ages ranged from 31 to 55 years (mean=42.6 years, S.D.=5.25). All of the girls and all but two mothers self-identified as African American. Nearly two-thirds of mothers were married or living with a partner. While 80% had only one daughter in the age range of 11 to 18, 84% reported that they had more than one child. Although boys were not included in the study, many of the participating parents reported that they also had male adolescent children, and their comments often referred to both their daughters and sons.

Tables 3–6 report the themes and subthemes for each of the 4 P's and selected illustrative quotes. The subthemes are listed in order of how frequently they were mentioned by mothers or by daugthers, from more frequent to less frequent. The letters in brackets indicate whether the themes and subthemes applied to all segments or only to certain segments.

Product

First, we report mothers' and daughters' explicitly stated benefits of getting HPV vaccine (Table 3). Both mothers and daughters mentioned the health benefits of preventing cancer and HPV infection. Non-health benefits for mothers included protecting daughters from harm, not wanting to regret if daughters got cancer, helping daughters realize their dreams, and educational value. Daughters also mentioned wanting to make their own choices and having a healthy future.

An emergent theme was the perception of HPV vaccine as different from other vaccines. Undecided mothers who perceived HPV vaccine to be just like any other vaccination tended to be more accepting of the vaccine. On the other hand, undecided mothers who felt HPV vaccine was unique compared to other vaccines because it was newer and it prevented a sexually-transmitted virus tended to be more skeptical of the vaccine. Nearly all of the mothers felt comfortable with other routine, required vaccinations, although there was variation in the use of the flu vaccine. Mothers had a number of aspirations for their daughters' future, and daughters had various professional goals for themselves. Mothers and daughters were both concerned about daughters reaching their goals and things that could interfere. Mothers valued teaching their daughters, watching them grow, and loving them.

Price

During the analysis of perceived barriers, two sub-segments emerged within the Undecided segment based on degree of reluctance to obtain the HPV vaccination. The results in Table 4 are separated for these two sub-segments. The *Undecided/Ready If Offered* subsegment primarily cited lack of information, their doctor not having recommended the vaccine, or the vaccine not being in stock at the clinic as the reasons why they had not gotten the vaccine for their daughters, and after receiving information in the focus group, they said they were interested in getting the vaccine. On the other hand, the *Undecided/Skeptical* subsegment was open to considering HPV vaccine, but they had a variety of concerns they wanted answered by a doctor or other reliable source before making a decision. These included newness of the vaccine, distrust of drug companies, thinking the recommended age is too young, lack of confidence in the vaccine's effectiveness, concerns about side effects, concern it could make their daughters promiscuous, thinking the vaccine is not needed, and their daughters not being sexually active yet. Mothers in the rejected segment perceived similar barriers, with safety/side effects the most common. Mothers in the completed and incomplete segment generally did not perceive any barriers to initiating the HPV vaccine series, since their daughters had already started the series.

Many of the daughters were concerned about the pain of the injection. Girls also mentioned being embarrassed to talk about it with their parents, thinking they did not need it because they were not sexually active yet, doubting the effectiveness of the vaccine, concern about side effects, and lack of information. In terms of completion of the vaccine series, mothers mentioned the barriers of not knowing there were three shots and not knowing when they needed to go back for the second and third shots.

Mothers suggested several strategies for overcoming these barriers. For initiation of the vaccine, they mentioned tying HPV vaccine in with other immunizations required during middle school and offering the vaccines at school with the parents' consent. For completion of the series, they suggested appointment reminders for the second and third shots (e.g., text message, appointment card, phone message, email), allowing walk-ins for the second and third shots, and general follow-up after the clinic visit. Some daughters suggested making a new form of the vaccine that did not have to be administered via injection.

Placement

Mothers primarily indicated that their decisions about HPV vaccine took place or would take place at the doctor's office, but some also mentioned at work for those employed in a healthcare setting, or at home (Table 5). Daughters indicated that their parents, in particular the mother, made or would make the decision. The level of involvement of the daughter in the decision to vaccinate increased with age. When asked who or what would influence their decision to get HPV vaccine for their daughters, mothers mentioned the medical provider's recommendation as the most important influence, along with conversations with their daughters about the vaccine in relation to sex and sexually-transmitted infections (STI's, especially for older girls), hearing from other parents they know who chose to get the vaccine, hearing about the vaccine at church, and seeing the vaccine offered together with other pre-teen vaccines required for middle school. Some mothers felt HPV vaccine should be mandatory like other vaccines, while others were not comfortable with it being mandatory. Daughters mentioned their decisions would be influenced by receiving information about the vaccine at school, through wellness classes or materials sent home to parents, the medical provider's recommendation, and hearing from peers who have gotten the vaccine.

Promotion

Mothers and daughters suggested multiple information channels to disseminate messages promoting the vaccine, including mass media, in-person events, the doctor's office, community organizations, school, social media, text messaging, and videos (Table 6). Daughters mentioned technology-based strategies more often than mothers. For effective spokespersons, both mothers and daughters mentioned doctors, famous celebrities, and persons who have had HPV, cancer, or the vaccine. Mothers also mentioned media personalities and community organizations, and daughters mentioned public health authorities and other teenagers. Mothers suggested messages should provide general information about HPV vaccine, recommend it together with other pre-teen vaccines, come from a trusted source, provide information about safety and side effects, cite figures on cancer and mortality, indicate recommended ages for vaccination, include both boys and girls, be directed to both parents and teens, explain how HPV is spread, and direct them where to get more information. They also said messages should be simple and include a catchy slogan or tune. Daughters suggested messages should be eye-catching with colorful text and images, and messages for teenagers should be made by and/or designed especially for teenagers. They said messages should include information about safety and side effects of the vaccine and about how common HPV infection is.

DISCUSSION

We stratified our sample by four market segments based on HPV vaccination status and intent to vaccinate, in order to compare the Undecided segment to those who had already vaccinated or had rejected the vaccine and, thus, identify social marketing strategies specific to our target group, the Undecided segment. During data analysis, we identified two subsegments within the Undecided segment based on barriers to vaccination and degree of reluctance. These segments and sub-segments – Completed, Incomplete, Undecided/Ready If Offered, Undecided/Skeptical, and Rejected – reflect the pattern of vaccine dissemination from early adopters to laggards in the Dissemination of Innovations Theory (13). Our formative research findings suggested several ways in which a social marketing campaign for HPV vaccination could be targeted for Undecided African American adolescents and their mothers.

The findings related to Product suggest that HPV vaccine should be presented to the Undecided segment as a routine vaccine (just like other vaccines) that helps prevent cancer. We recommend framing the core product for Undecided African American mothers as: Getting HPV vaccine is a way to protect your children from harm, help them to realize their dreams, and avoid future regret if your children were to develop cancer. For Undecided African American girls, we recommend framing the core product as: Getting HPV vaccine is a way to feel empowered to take charge of your health and have a healthy future to realize all of your dreams. A study that pre-tested social marketing messages in a multi-ethnic rural sample found that mothers preferred messages appealing to their instinct to protect their daughters from harm and their aspirations for their daughters' future (30). In a multi-ethnic survey of parents, anticipated regret was associated with vaccination (31). A survey of African American parents reported preventing cancer, protecting daughters from harm, and reducing worries about future health as important reasons to vaccinate daughters (32).

Findings related to Price suggest that the Undecided/Ready If Offered segment would easily accept getting HPV vaccine if given the opportunity; they just needed basic information and a doctor recommendation. The Undecided/Skeptical segment would need more in-depth information to allay their concerns about vaccine safety, mistrust of drug companies, and to explain why adolescents need the vaccine at an early age before becoming sexually active. Some mothers and girls had the erroneous perception that girls do not need the vaccine until they become sexually active. Concerns about the recommended vaccination age and daughters not being sexually active were also identified by African American parents in other studies as barriers to HPV vaccination (31–33). A multi-ethnic focus group study found that mistrust of drug companies was stronger among African American parents than in other racial/ethnic groups (34), who made references to the Tuskegee syphilis study (35).

African American girls and their mothers overwhelmingly thought campaigns should target both girls and boys for HPV vaccination. Many of the mothers had both daughters and sons and wanted to receive information relevant to all of their children, since the vaccine is now approved for boys and HPV causes other cancers besides cervical cancer. Two recent studies reported that the majority of African American or ethnically-diverse parents support getting HPV vaccine for their sons (36,37). Future research should investigate the effectiveness of promoting HPV vaccine for both girls and boys.

Some mothers were comfortable talking about STI's with their daughters, while other mothers did not like messages that linked HPV vaccine to sexual activity because their daughters were too young to be thinking about sex yet or they did not feel comfortable talking about it with them. A few mothers were concerned that the vaccine could cause girls to feel protected against STIs and encourage sexual activity. Other studies have also found this perception among some parents (38). Campaigns and messages may need to be tailored for pre-teens versus teens and their parents, with less emphasis on HPV as an STI for younger ages. At the same time, nearly all mothers and adolescents perceived cancer prevention as a major benefit of the vaccine, so it may be more effective for campaigns to emphasize cancer prevention over STI prevention. Another study testing social marketing messages about HPV vaccine also found that mothers preferred messages about preventing cervical cancer rather than messages about preventing HPV (30). In addition, parents likely need to be the primary audience when targeting pre-teens since they tend to make the vaccine decision, while older teens may be more involved in the decision and could be either the primary or secondary audience.

Limitations

The study relied on parents' self-report of their daughters' vaccination status, which can be affected by recall bias (44). Parents' self-report of vaccination status and participants'

comments during focus groups and interviews could also be influenced by social desirability, meaning the desire to present favorably in front of researchers or peers. In addition, convenience samples are potentially limited by selection bias.

Significance

This study makes several contributions to HPV vaccine literature. First, very little social marketing research focusing on HPV vaccine has been published to date (28,30). This is the first published study to identify specific market segments related to HPV vaccine and to report on formative qualitative data aimed at comparing the Undecided segment to those who have received or rejected the vaccine. Second, while several studies examine attitudes about HPV vaccine and correlates of HPV vaccination, and several include a substantial proportion of African Americans in the sample (34,31,39,36,40), few focus on both African American adolescent females and mothers, as this study does (41–43,32). Finally, this study provides valuable formative data that can inform the development of social marketing campaigns to increase HPV vaccination that target African American or ethnically diverse adolescents and their parents in the Undecided segment.

Conclusion

Increasing uptake and completion of the HPV vaccine series among African American girls will reduce rates of cervical cancer among African American women, which in combination with continued Pap testing can eventually reduce disparities in cervical cancer. Overall, our findings pointed to the need to “normalize” the perception of HPV vaccine as just another routine vaccine. Mothers wanted HPV vaccine promoted for both boys and girls, rather than singling out only girls. Many mothers wanted HPV vaccine promoted together with other vaccines that are recommended for pre-teens, instead of singling out HPV vaccine. Undecided mothers who felt HPV vaccine was different from other vaccines tended to be more skeptical of the vaccine. These formative research findings may be informative for the development of social marketing interventions promoting HPV vaccine among Undecided parents and adolescents.

Acknowledgments

This research was supported by grants CA163072, CA163066 and CA163069 from the National Cancer Institute, National Institutes of Health (NIH). The ResearchMatch.org registry, sponsored by NIH grants UL1TR000445 and 1U54RR032646, is managed by the Vanderbilt Institute for Clinical and Translational Research. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH. We would like to thank the members of our Community Advisory Board and Teen and Parent Committee, as well as our consultant, Carol Bryant, Ph.D., for their invaluable input into the design and implementation of this study and interpretation of the findings. We also thank Minka Reed, Blaine Brown, Alma Poole, Rita Fleming, and Stephenie Chimezie for their assistance with data collection and data management. The study is associated with Cervical Cancer Free Tennessee, for which the first author (PH) serves as a Statewide Co-Chair.

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RESEARCH HIGHLIGHTS

- Skeptical mothers need in-depth information about vaccine safety and age recommendations to accept the vaccine.
- Mothers suggested promoting HPV vaccine together with other pre-teen vaccines, targeting both boys and girls, and emphasizing cancer prevention.
- Findings suggest need to “normalize” perception of HPV vaccine as a routine vaccine rather than singling it out as unique.

Table 1

Number of Participants by Eligibility Category

	# of Participants	
Eligibility Category/Market Segments	**Focus Groups**	**Individual Interviews**
Category 1: Completed vaccine series		
1.a. Girls	6	5
1.b. Mothers	6	4
Category 2: Incomplete: Started/did not complete series		
2.a. Girls	3	2
2.b. Mothers	3	2
Category 3: Not vaccinated – Rejected vaccine		
3.a. Girls	3	2
3.b. Mothers	3	2
Category 4: Not vaccinated – Undecided		
4.a. Girls	9	4
4.b. Mothers	7	4
Total number of participants	40	25

Table 2

Demographic Characteristics of Mothers and Daughters in Sample

Variable	N	%
Daughter's Age		
11	2	5.9
12	5	14.7
13	5	14.7
14	6	17.6
15	4	11.8
16	6	17.6
17	3	8.8
18	3	8.8
Mother's Age		
30–35 years	2	6.5
36–39 years	7	22.6
40–44 years	12	38.7
45 and older	10	32.2
Mother's Race		
African American	28	90.3
Other	3	9.7
Marital Status		
Never married	5	16.1
Divorced	6	19.4
Living with a partner	2	6.5
Married	18	58.1
Completed degree		
Less than high school degree	1	3.2
High school degree/GED	18	58.1
Bachelor's Degree	5	16.1
Graduate Degree	7	22.6
Number of children		
1	5	16.1
2	9	29.0
3	9	29.0
4	6	19.4
5	2	6.5
Number of daughters between the ages of 11 and 18		
1	25	80.6
2	3	9.7
3	3	9.7

Table 3

Summary of Findings for Product: Benefits of Getting HPV Vaccine

MOTHERS

Benefits of vaccinating [A]

- Prevents cancer
- Prevents HPV/STIs (no cure for HPV)
- Protects daughter from harm
- Don't want to regret it if she gets cancer
- Realize her dreams
- Educational value for daughter

"I think it's a really good preventative measure for girls and boys." [C]
"…there is a potential that she could, being young, unknowingly be infected with the HPV virus because you can't look at someone and tell that they have the virus and so rather than taking that risk to just go ahead and get it [vaccine]." [C]
"…if you can get a vaccine to prevent something, then I think it's a good idea, because there's not many vaccines out there that can prevent sexually transmitted-type viruses." [C]

Comparison with other vaccines

- Family receives other vaccines [C, U]
- Just like any other vaccination [U]
- Similar to flu shot [C]
- Some see it as different because newer and associated with sexual activity [U]

"…it is a much more valuable vaccination than the flu. I'm going to get over the flu. HPV is potentially something I can have for a lifetime." [C]
"…they get chicken pox shots and measles shots and the hepatitis shot. Why don't they get this one?" [U]
"I just tried to put it in the view of she's had all the other childhood immunizations." [C]

Aspirations for Daughters

- That daughter is a well-rounded, balanced, focused, confident individual [U]
- That she remembers what she was taught [U]
- That she is responsible [A]
- That she is a productive member of society [C]

"…remember who she is and to stay grounded even during those times when her life is pulling her in different directions." [U]

Values

- Teaching daughter [U]
- Leading by example [U]
- Watching her grow [A]
- Showing her love and affection [A]
- Learning from her [C]

"I just want my daughter to literally not make some of the mistakes that I did…" [U]

Concerns for Daughter

- Her future/Reaching her goals [U]
- Boys/Sex/Getting pregnant/STIs [A]
- Health [A]
- Peer pressures [A]
- Self-awareness/Confidence [A]
- That she makes good choices [A]
- School [A]
- That she learns from my mistakes [A]
- Appearance [A]
- Emotional health [C]
- Keep her safe/protected [C]

"One of the things I want for my daughter do is to remain confident in is her ability to lead and I don't want her to get caught up in being a follower." [R]

DAUGHTERS

Benefits of vaccinating [A]

- Prevents cancer
- Protects myself in general
- Prevents HPV
- To make my own choices
- Have a healthy future

Aspirations for Self [A]

- To work in the medical field
- To work in the fashion industry
- To be a teacher

Concerns for Self [A]

- Reaching goals/getting a good job
- Getting into college/making good grades
- Buying a car/learning to drive
- Family issues

"I wonder about what people think of me when I walk into a room…" [I]
"I try to look for a boy to replace my real father because my real father, he's not really there for me like I wish he was and I want somebody to be there for me…" [U]

MOTHERS	
• To attend & graduate college • To own my own business *"My dream is to become a nurse because I like helping people and children…"* [U]	

Note: Subthemes in bulleted lists are listed in order of frequency, from more frequent to less frequent.

Key: Letters in brackets indicate to which market segment each theme/subtheme applies, as follows: A= All segments, C= Completed, I= Incomplete, U= Undecided, R= Rejected.

Table 4

Summary of Findings for Price: Costs/barriers to starting and completing vaccine

MOTHERS

Barriers to starting vaccination series
Undecided [U] – Ready if Offered segment:

- Do not know enough about it
- Doctor has not recommended it
- Vaccine not in stock at clinic

"Her doctor never said for her to get the shot or the vaccine, and that concerns me because she goes every year and nobody mentioned it." [U]

Undecided [U] – Skeptical segment:

- Vaccine is too new
- Distrust of drug companies
- Recommended age too young
- No guarantee the vaccine works
- Concern about side effects
- May make daughter promiscuous
- Vaccine not necessary
- Daughter is not sexually active

"…it's not even really the vaccine so much. I think it's just the idea of me thinking about my daughter being sexually active. I think if I was able to grasp that more, I would probably be more flexible." [U]

Rejected [R] segment:

- Concern about side effects
- Do not know enough about it
- No guarantee the vaccine works
- Vaccine is too new
- Daughter is not sexually active

"…I felt like it was a relatively new vaccine and I didn't want her to be used as kind of a guinea pig." [R]

Barriers to completing the vaccination series [I, U, R]

- Not knowing there were 3 shots
- Not sure when next appointment/shot was due

"…there is second shot, that was the one thing I was not aware of…" [R]

Ways to overcome barriers [I, C]

- Appointment reminders (text, card, phone message, email)
- Allow walk-ins for 2nd and 3rd shots rather than appointment
- Tie in with other school immunizations
- Offer the vaccine at school
- Follow-up after clinic visit

"I wish it could tie in with other immunizations." [C]
"…my life is so busy and trying to remember everything, a phone call, a text, an email, any kind of reminder…" [I]

DAUGHTERS

Barriers to starting vaccination series
Undecided [U] segment:

- Pain/scared of shots
- Embarrassed to talk about it with parents
- Not sexually active so do not need it
- Vaccine may not work
- Concern about side effects
- Do not know enough about it

"… it would be an awkward conversation because your parents would be like, 'well how do you feel about doing this or are you doing this?', and some questions get irritating after a while." [U]

Rejected [R] segment:

- Concern about side effects
- Pain
- Do not know enough about it
- Not sexually active so do not need it

Ways to overcome barriers [U, I]

- Give vaccine in form other than injection
- Give rewards for getting vaccinated

Note: Subthemes in bulleted lists are listed in order of frequency, from more frequent to less frequent.

Key: Letters in brackets indicate to which market segment each theme/subtheme applies, as follows: A= All segments, C= Completed, I= Incomplete, U= Undecided, R= Rejected.

Table 5

Summary of Findings for Placement

<table>
<tr><th colspan="2">MOTHERS</th></tr>
<tr><td><u>Decision Location</u> [C, R, I]
At the clinic/doctor's office
At work in a healthcare setting
At home
"It was time for my daughter's yearly, along with her going to the seventh grade this year…" [I]
"…when I first found out about the information I came home with the information and I gave it to her to read and I also read it, we read it together and she asked me any questions about it because I made sure that I knew before I gave information to her." [C]</td><td><u>Decision Influencers</u>
Medical provider recommendation [A]
Parent/daughter conversation (about sex, STIs, etc.) [A]
Communication with other parents [C]
Church (completed group) [C]
Recommend with other pre-teen vaccines required for school [C]
Make vaccine mandatory [C]
Some would be uncomfortable with mandate [U]
"For me it would be my gynecologist, I trust him a lot. But I'm still kind of skeptical, so it would be a combination between what he said, his opinion, and what I read…" [U]
"I would find out at each church who are the parents whose children have had it…" [C]</td></tr>
<tr><th colspan="2">DAUGHTERS</th></tr>
<tr><td><u>Decision Location</u> [A]
Parents (mom) make decision
"One of my brother's friends, she got cervical cancer, and we were talking about that before we went to the doctor's office, so my mom asked my doctor if I could get it." [C]
"My mom said I'm not going to get it. She doesn't want me to." [R]</td><td><u>Decision Influencers</u> [A]
School – wellness class and information sent home
Medical provider recommendation
Communication with peers
"…she talked to my pediatrician and he said his daughter had it. So my mom was like, "well, if he said its ok, then its ok. Because he's known me since I was born…" [C]</td></tr>
</table>

Note: Subthemes in bulleted lists are listed in order of frequency, from more frequent to less frequent.

Key: Letters in brackets indicate to which market segment each theme/subtheme applies, as follows: A= All segments, C= Completed, I= Incomplete, U= Undecided, R= Rejected.

Table 6

Summary of Findings for Promotion

MOTHERS

Informational Channels [A]

- Radio
- Informational forum/event
- Doctor's office
- Community organizations/church
- Social media (Twitter, Facebook)
- Internet web sites
- Text messaging
- YouTube/video
- Television
- Flyer
- School

"…any type of youth event, youth rally, youth conventions." [C]
"…with the age that you're looking at, I mean most of them talk, text, tweet, Facebook." [I]

Effective Spokespersons [A]

- Doctor
- Famous celebrity
- Someone who had HPV/cancer/vaccine
- Radio/TV host
- Community organization (e.g., Boys & Girls Club, Girl Scouts)

"…maybe somebody like a lot of people would look up to, a lot of kids look up to the radio station host." [I]
"Realistic stories. Realistic stories. Real things that happen to real people." [R]

Message Design Recommendations [A]

- General information about vaccine
- Message from trusted source
- Recommend together with other preteen vaccines
- Information about safety/side effects
- Statistics on cancer and mortality
- Clarify recommended ages
- Include information for boys and girls
- Directed to both parents and teens
- Information about how HPV is contracted
- Where/how to find more information
- Keep it simple
- Catchy slogan/tune

"…boys need to know about it too. I mean especially if they are doing these things, they are having sexual contact with people, and boys start a little bit quicker than girls sometimes." [U]
"…it would just have to be that over time I would just have to hear how many people did it actually prevent from catching cervical cancer. Tell me, show me the outcome of it." [R]

DAUGHTERS

Informational Channels [A]

- Social media
- Flyers
- Internet web sites
- School
- Text messaging
- YouTube/video
- Smartphone App
- Church

"…because a lot of us have iPods, iPhones, phones period. So they know that's just in their pocket if they need information or have questions." [R]
"…the way I find out things is always, always through school and Tumblr, which is a social networking site." [C]

Effective Spokespersons [A]

- Famous celebrity
- Public health authority (e.g., health dept., CDC)
- Doctor
- Someone who had HPV/cancer
- Other teenagers

"…if they see somebody else that is their age and they are talking about it and they have gotten it, then it will probably be more effective." [R]

Message Design Recommendations [A]

- Colorful with bold letters and pictures
- Information about safety/side effects
- Information made by/directed to teenagers
- Information about how common HPV is

Note: Subthemes in bulleted lists are listed in order of frequency, from more frequent to less frequent.

Key: Letters in brackets indicate to which market segment each theme/subtheme applies, as follows: A= All segments, C= Completed, I= Incomplete, U= Undecided, R= Rejected.