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Human papillomavirus vaccine series completion: Qualitative information from providers within an integrated healthcare organization

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ABSTRACT

Objective: This qualitative study aimed to identify doctors' and nurses' perceptions of patient-, provider-, and system-level factors associated with human papillomavirus (HPV) vaccine completion that may be targets for intervention.
Methods: We analyzed data from 61 qualitative interviews with pediatricians, family medicine physicians, and immunization nurses at medical centers that had the highest and lowest HPV vaccine completion rates within the same health care system.
Results: In both groups, almost all providers reported strong support for the HPV vaccine. In detailing how they talk to parents and patients about the vaccine, more of the providers working at higher completion centers described using effective communication techniques, including engaging parents and patients in two-way conversation and demonstrating awareness of cultural and practical barriers to completion that families may face. Providers at higher completion centers were also more likely to depict a local medical culture supportive of and committed to HPV vaccine completion, with greater levels of proactivity and teamwork. In contrast, providers working at lower completion medical centers described a lack of proactivity, and the strategies they suggested to improve HPV vaccine completion tended to be approaches that someone other than medical providers would implement. The comments made by these providers sometimes reflected a level of negativity and judgment absent from the comments of providers at higher completion centers.
Conclusion: Interventions to improve HPV vaccination completion rates should address both individual- and system-level factors. Improving communication skills, encouraging a supportive medical culture, and addressing resource issues is likely to improve vaccine adherence.

1. Introduction

Q2 Recent analyses suggest that the three-dose human papillomavirus (HPV) vaccine could prevent 25,000 cases of cervical, anal, and other cancers annually in the United States alone [1]. Universal vaccination of 11- to 12-year olds has been recommended in the US for girls beginning in 2006, and for boys beginning in 2011. In spite of these recommendations and the potential for dramatic public health impact, rates of full vaccination against HPV fall short of targeted levels. Analyses of the 2013 National Interview Survey-Teen indicate that among 13- to 17-year-olds, 37.6% of girls and only 13.9% of boys had received three doses of vaccine [2].

Healthcare providers often report positive attitudes about the HPV vaccine and support its administration [3–6], yet many are not recommending that parents vaccinate their children. Bruno and colleagues found that only 34% of providers routinely recommend the vaccine [4]. Others found higher reported rates of provider recommendation but these varied with patient age [7,8]. The body of literature exploring HPV vaccine initiation is now fairly substantial. However, the literature on vaccine completion is still limited. An

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important initial perspective would address healthcare providers' perceptions and how they practice to ensure completion of the vaccine series. The current qualitative study focused on immunization providers working at medical centers with particularly low and particularly high HPV vaccine completion rates within the same healthcare system. Our aim was to elicit providers' perspectives of patient-, provider- and system-level factors in order to develop a more comprehensive understanding of vaccine completion and, ultimately, to identify promising targets for interventions.

2. Methods

2.1. Study design and sample

The study was conducted at Kaiser Permanente Southern California (KPSC), a large, integrated healthcare system serving 4 million members at 14 medical centers. KPSC membership is diverse, and representative of the population of southern California [9]. Between December 2013 and August 2014, the study recruited immunization providers from two groups of medical centers: the three with the highest HPV series completion rates and the three with the lowest. Medical centers were selected based on 2012 rates of series completion within 1 year of initiation for 9- to 17-year-olds. All immunization nurses, family medicine physicians and pediatricians working at those six medical centers who saw patients in 2013 or 2014 were eligible to participate. The goal was to recruit 10 of each provider type from the higher completion centers and 10 from the lower completion centers, for a total of 60 participants. Potential participants were recruited by email, telephone, or through presentations at departmental meetings. Recruitment aimed to achieve gender parity within each provider type, with the exception of immunization nurses (where the large majority were female). Participants were offered a $10 gift card as compensation. The study was approved by the KPSC Institutional Review Board.

2.2. Instrument and data collection

Two instruments were used to collect data: a brief demographic survey, and a semi-structured interview guide. The demographic survey assessed age, gender, race/ethnicity, education, years in practice, and confirmation of specialty of practice and medical center. The interview guide was piloted with immunization providers working at locations other than the participating medical centers; pilot feedback was incorporated into the final version (Table 1).

Interviews were conducted by telephone and, on average, lasted 30–45 min. For all but one, interviews were digitally recorded and transcribed verbatim. One participant refused to be recorded; the interviewer took notes as the participant answered a question, and read them back to ensure that they accurately captured the response.

2.3. Data analysis

Data were coded by two doctoral-level investigators: a behavioral scientist (SH) and a nurse scientist (JR). They first analyzed five randomly selected interviews and then met to compare and discuss themes. After three such cycles of selecting and coding interviews and comparing the themes that emerged, the final list of codes and definitions was agreed upon. These codes were used to conduct content analysis of all interviews, using NVivo 10 for Windows (QSR International). Inter-rater agreement was 90% or greater for all themes in all interviews, and the interviews achieved thematic saturation.

Table 2
Demographics of participants at higher performing versus lower performing medical centers.

Demographic category[†]	Higher performer ($n=31$) N (%)	Lower performer ($n=30$) N (%)
Provider type:		
Immunization nurse	10 (32.3)	11 (36.7)
Family medicine physician	9 (29.0)	10 (33.3)
Pediatrician	12 (38.7)	9 (30.0)
Gender:		
Female	21 (67.7)	19 (63.3)
Male	10 (32.3)	11 (36.7)
Age:		
25–34	4 (12.9)	4 (13.3)
35–44	12 (38.7)	13 (43.3)
45–54	9 (29.0)	10 (33.3)
55+	6 (19.4)	3 (10.0)
Race/ethnicity:		
White	11 (35.5)	10 (33.3)
Hispanic/Latino	7 (22.6)	7 (23.2)
Asian/Pacific Islander	4 (12.9)	6 (20.0)
Black	5 (16.1)	6 (20.0)
Other/mixed	3 (9.7)	1 (3.3)
Missing	1 (3.2)	0
Education		
Total years in practice:		
1–5	5 (16.1)	3 (10.0)
6–10	4 (12.9)	7 (23.2)
11–15	6 (19.4)	4 (13.3)
16–20	5 (16.1)	9 (30.0)
21+	11 (35.5)	7 (23.2)
Years practicing at KPSC:		
1–5	9 (29.0)	13 (43.3)
6–10	5 (16.1)	6 (20.0)
11–15	7 (22.6)	3 (10.0)
16–20	2 (6.5)	4 (13.3)
21+	8 (25.8)	4 (13.3)

[†] Chi-square shows no differences are significant at the p=.05 level

3. Results

A total of 945 providers were eligible to participate in the study: 434 from higher completion medical centers ("higher performers") and 511 from lower completion medical centers ("lower performers"). Relatively few providers in either group declined participation (9.7% at higher performers versus 14.7% at lower performers). Participants were enrolled on a first come, first served basis until target enrolment was reached. A total of 62 providers consented to participate and were interviewed (Fig. 1). Due to a technical malfunction, no recording was made of one interview and no notes were available; therefore, the interview could not be included. The final sample comprised 61 participants: 31 from higher performers and 30 from lower performers. The HPV completion rates were roughly 10% higher among higher versus lower performer medical centers (32.6, 35.5 and 35.7, and 22.8, 23.9 and 25.8%, respectively). The two groups did not differ significantly in their demographic makeup (Table 2).

3.1. Similarity in support for HPV vaccine

Providers in both groups expressed positive attitudes about the vaccine, viewing it as an important preventive tool for cancer (Table 3). Only three (two higher performers, one lower performer) explicitly expressed negative views.

3.2. Provider communication

Communication was one of three broad factors identified in which higher performer providers differed from their lower performer colleagues (Fig. 2). Relative to lower performers, a greater

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