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## Parent perceptions of dentists' role in HPV vaccination

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## ABSTRACT

**Introduction:** Offering HPV vaccine in settings beyond the traditional medical home holds promise for increasing the currently low levels of coverage. As adolescents frequently visit dentists, dental practices may be one such alternative vaccination setting. This study assessed parent attitudes about the roles dental providers could play in HPV prevention, including vaccine provision.

**Methods:** In September 2016, we conducted an online survey using a national sample ( $n = 1209$ ) of U.S. parents of adolescent children aged 11–17. Adolescents' mean age was 14; 53% were male and 62% were non-Hispanic white. We identified correlates of parents' comfort with dentists as HPV vaccinators using multivariable logistic regression.

**Results:** Overall, 23% of parents reported that they would feel comfortable with their child receiving HPV vaccine from a dentist. In multivariable analyses, parents had greater odds of being comfortable if they had higher trust in their child's primary care provider (OR = 1.27, 95% CI: 0.96–1.68) and lower odds if their child was female (OR = 0.65, 95% CI: 0.50–0.86). Convenience (20%) and oral health expertise (20%) were the most commonly cited benefits of dentists administering the vaccine. Wanting their child's regular provider to administer and track vaccinations (61% and 58%, respectively), and lack of insurance coverage (30%) were the most commonly cited concerns. Parents expressed somewhat greater comfort with roles dentists might play in promoting HPV vaccination other than vaccine delivery, such as providing education.

**Conclusions:** Parents in this sample had low comfort with dentists as HPV vaccinators. Findings from this study highlight potential concerns to be addressed before dental practices consider offering HPV vaccination in the future. Further research should assess dentists' perspectives and explore alternative roles for dental providers in HPV prevention efforts.

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### 1. Introduction

Though human papillomavirus (HPV) vaccine has been available since 2006, coverage for adolescents in the U.S. remains low, with only 30% of boys and 40% of girls having completed the series by age 17 [1]. Parental hesitancy towards HPV vaccination is one reason for low uptake in adolescent populations, with many parents choosing initially to refuse or delay HPV vaccination, reporting that they do not know enough about it, and having concerns about its safety or effectiveness [2–4]. As with other vaccinations, additional barriers include low levels of preventive medical care among adolescents and missed opportunities for provider

recommendation during existing clinical encounters [5–10]. As a multi-dose series, these barriers may be heightened for HPV vaccination [8,11]. Given these challenges, improving vaccination coverage to prevent HPV-associated cancers of the head, neck, and genital tract may require significant systems-level change.

Most adolescents receive vaccines at their primary care provider's office, but offering vaccination in alternative settings beyond the medical home has potential for increasing coverage, particularly for follow-up doses of the vaccine [12,13]. Currently, primary care providers deliver a wide range of preventive services to adolescents, including HPV vaccination and counseling, posing serious challenges given resource and time constraints on the provider and patient sides [14]. In response to these challenges, school-based clinics and pharmacies have emerged as promising alternative settings to promote and administer HPV vaccine [15,16]. In addition, the potential for dentists to use their offices as a setting for HPV vaccination and education has gained attention among dental

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professionals and public health researchers [14,17,18]. Dentists have grown increasingly interested in improving population health through preventive oral care, and many dentists already perform and receive reimbursement for oral cancer screenings [17,19].

Because HPV vaccination is recommended for pre-teens and young adolescents and parents are the primary decision-makers for their children's health care, parental acceptability of both the vaccine and delivery approach, are critical [1,20]. No currently available evidence demonstrates whether parents would support administration of HPV vaccine in dentists' offices, or dentists providing education on HPV or HPV vaccine. Thus, we sought to: (1) explore parents' comfort with dentists in HPV prevention roles, (2) identify factors correlated with high acceptability of dentists administering HPV vaccinations, and (3) assess parents' perceived benefits and concerns with this approach.

## 2. Methods

### 2.1. Participants and procedures

We conducted an online survey administered to a national sample of parents of adolescents ages 11–17 in September 2016. Survey respondents were members of a standing panel of U.S. adults maintained by GfK, a survey research company [21]. Participants were recruited through list-assisted addressed based sampling with phone call follow-ups for non-responsive households [21]. Respondents received points exchangeable for small cash payments from the company as an incentive for completing surveys. Harvard Pilgrim Health Care Institute's Institutional Review Board (IRB) approved the original study's protocol. The University of Minnesota IRB determined this secondary analysis exempt from review.

Of the 2580 panelists invited to complete the eligibility screening survey, a total of 1253 met the inclusion criteria and completed the survey (response rate = 59% based on the American Association of Public Opinion Research formula 4) [22]. The present analysis excluded 44 respondents with missing data, resulting in a final analytic sample size of 1209 parents.

### 2.2. Measures

Throughout the survey, parents were asked to answer questions about their 11–17 year old child; parents with multiple children in the age range were asked to answer about the child with the most recent birthday. The survey provided parents with information about oral HPV and dentists as vaccinators before items about dentists' HPV prevention roles: "Some types of HPV can cause mouth and throat cancer. The HPV vaccine can protect against some of these types," and "In some states, dentists who have completed special training are allowed to give vaccines."

A single item assessed parent comfort with dentists as HPV vaccinators: "Imagine you and your [son/daughter] decided to get [him/her] the HPV vaccine, how comfortable would you be with [child's name] getting the HPV vaccine from a dentist?" Four survey questions assessed parents' comfort with dentists taking on other HPV prevention roles including: providing written information about HPV vaccine, talking to parents about HPV vaccine, talking to children about HPV vaccine, and finally, recommending that children get the HPV vaccine from their regular doctor. Response options for all comfort variables used a 5-point scale ranging from "very uncomfortable" (1) to "very comfortable" (5). Consistent with the approach taken in other research [13], we dichotomized responses into "comfortable" (responses of "very comfortable" and "somewhat comfortable") or "not comfortable" (responses of

"very uncomfortable," "somewhat uncomfortable," and "neither uncomfortable nor comfortable") for analyses.

The survey assessed parents' perceived benefits and concerns with dentists administering HPV vaccinations with two parallel questions: "What [benefits/concerns] would you have with [child's name] getting the HPV vaccine at the dentist's office?" Parents selected all that apply from predefined lists developed based on existing literature about HPV vaccination and alternative vaccination settings [13,23,24]. Potential benefits included: convenience, trust in dentist to administer the vaccine, belief that dental office staff would have appropriate skills to administer the vaccine, child's comfort at the dental office, and dental expertise in oral health. Potential concerns (or perceived drawbacks) included: that insurance might not cover the vaccine, that staff may not be good at giving shots, that staff might not be able to answer questions, that staff might not be able to deal with side effects, the belief that dentists should not give vaccines, preference for vaccine delivery by child's regular care provider, and preference for regular provider to keep track of all of their child's vaccines. Additionally, parents could also select "I would see no [benefits/concerns]."

Parents reported demographic information about themselves, their child, their household and their child's access to health care services. Information about the parents included sex, race/ethnicity, education level, and their perceptions of the quality of their relationship with their child's healthcare provider [25]. Information about the household included income and urbanicity (based on living within a metropolitan statistical area, as defined by the U.S. Census Bureau) [26]. Information about the child included sex, age, race/ethnicity and health care access and use including whether they had health insurance, a regular health provider and regular oral health care clinic, and their HPV vaccination status. For vaccination status, which reflects parents' HPV vaccination intent and behavior, we combined two separate items assessing the number of doses of HPV vaccine the child had received and, for those who reported none, parent's intent to vaccinate their child to create a three-level variable (not vaccinated and does not intend to vaccinate in next 12 months; not vaccinated but intends to vaccinate in next 12 months; and vaccinated).

### 2.3. Analyses

We first descriptively assessed parents' comfort with potential HPV prevention roles. We then used bivariate logistic regression to identify correlates of comfort with dentists as HPV vaccinators, and entered all significant variables ( $p < .05$ ) into a multivariable logistic regression model. We conducted all analyses using Stata software version 14.2 (Statacorp, College Station, TX). Significance testing used two-tailed tests and a critical  $\alpha$  of 0.05, unless otherwise noted.

## 3. Results

### 3.1. Sample characteristics

Characteristics of the study sample are shown in Table 1. About half of parents were female and most had at least some college education or more. Parents reported similar proportions of children by sex. Most parents reported living in an urban area, over half had at least some college education, and over half reported household incomes about \$75,000. Almost all children had health insurance coverage and very few had not visited a dental clinic for routine care within the last year.

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