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Clinician-parent discussions about influenza vaccination of children and their association with vaccine acceptance

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ABSTRACT

Objective: To examine how clinicians communicate with parents about influenza vaccination and the effect of these communication behaviors on parental vaccine decision-making.
Study design: We performed a secondary analysis of data obtained from a cross-sectional observational study in which health supervision visits between pediatric clinicians and English-speaking parents of young children were videotaped. Eligible visits occurred during the 2011–2012 and 2013–2014 influenza seasons, included children ≥6 months, and contained an influenza vaccine discussion. A coding scheme of 10 communication behaviors was developed and applied to each visit. Associations between clinician communication behaviors and parental verbal vaccine acceptance and parental visit experience were examined using bivariate analysis and generalized linear mixed models.
Results: Fifty visits involving 17 clinicians from 8 practices were included in analysis. The proportion of parents who accepted influenza vaccine was higher when clinicians initiated influenza vaccine recommendations using presumptive rather than participatory formats (94% *vs.* 28%, $p < 0.001$; adjusted odds ratio 48.2, 95% CI 3.5–670.5). Parental acceptance was also higher if clinicians pursued (*vs.* did not pursue) original recommendations when parents voiced initial resistance (80% *vs.* 13%, $p < 0.05$) or made recommendations for influenza vaccine concurrent with (*vs.* separate from) recommendations for other vaccines due at the visit (83% *vs.* 33%, $p < 0.01$). Parental visit experience did not differ significantly by clinician communication behaviors.
Conclusion: Presumptive initiation of influenza vaccine recommendations, pursuit in the face of resistance, and concurrent vaccine recommendations appear to increase parental acceptance of influenza vaccine without negatively affecting visit experience.

1. Introduction

Influenza causes significant morbidity and mortality among U.S. children [1–3]. The influenza-associated hospitalization rate among children <5 years of age was 57.2 per 100,000 in 2014, and there have been between 34 and 358 influenza-associated pediatric deaths each year since 2004 [3]. Although it is recommended that all persons ≥6 months of age without contraindications be vaccinated against influenza annually [2], only 59.3% of U.S. children were vaccinated in the 2015–2016 season [4].

Evidence suggests that clinician recommendation is associated with parental acceptance of influenza vaccine for their child [5,6] and that clinician recommendation may be sufficient for parents to overcome influenza-related concerns [7]. There are no data, however, describing actual clinician communication with parents about influenza vaccine or the impact of specific behaviors on influenza vaccine acceptance. We previously found that the clinician initiation format for recommending other (non-influenza) childhood vaccines was associated with parental acceptance of

Abbreviations: ACIP, Advisory Committee on Immunization Practices; HPV, human papillomavirus; PACV, Parent Attitudes about Childhood Vaccines survey; VHP, , Vaccine hesitant parent.

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those vaccines and parental visit experience [8,9]. The objectives of this study, therefore, were to: (1) characterize influenza vaccine communication between pediatric clinicians and parents of children aged 6–19 months in the primary care setting; and (2) determine whether certain clinician recommendation practices are associated with parental acceptance of influenza vaccine for their child and parental visit experience.

2. Methods

2.1. Study design

We conducted a secondary analysis of videotaped health supervision visit data collected over 2 periods (period 1: September 2011–August 2012, n = 113; period 2: April 2013–June 2014, n = 103) as part of a cross-sectional observational study aiming to characterize clinician-parent communication about childhood vaccines. A primary analysis of period 1 data was published previously and focused on clinician-parent communication about routine (non-influenza) childhood vaccines [8,9]. This study was approved by the Seattle Children's Hospital Institutional Review Board.

2.2. Participants

We recruited 23 pediatricians and pediatric nurse practitioners from 16 primary care pediatric practices in the Seattle area over the 2 study periods. Parents of children receiving care from a participating clinician were approached in the practice waiting room. Eligible parents were ≥18 years of age, English-speaking, and had a child aged 1–19 months being seen for a health supervision visit. Parents were screened for vaccine hesitancy using the validated Parent Attitudes about Childhood Vaccines (PACV) survey [10–12], which was embedded into a larger survey about common childhood topics. Vaccine hesitant parents (VHPs), defined as those with a total PACV score of ≥50 (scale 0–100) [11,12], were oversampled in period 1 and the only participants enrolled in period 2. To minimize the chance that participants altered their vaccine-specific behaviors to meet observer expectation, the study was described as one that sought to better understand general clinician-parent communication.

2.3. Data collection

All study visits were videotaped. Parents completed a post-visit survey with 11 demographic items and 15 items pertaining to their visit experience adapted from the validated Outpatient Satisfaction Questionnaire [13] and Satisfaction with Immunization Service Questionnaire [14] (Appendix A). Videos were edited to contain only the vaccine discussion and subsequently transcribed.

2.4. Analysis

Videotaped visits were included in the analysis if they occurred during the typical influenza vaccination season (August–March), involved a child ≥6 months of age, and contained a discussion about influenza vaccine for the child.

2.4.1. Coding

One investigator (JDR) used conversation analysis with a subset of the data to refine the coding scheme developed in the primary analysis [8,9,15], verifying previously identified communication behaviors as relevant to the influenza vaccine discussion and identifying any unique communication behaviors for influenza vaccine. These were reviewed by another investigator (DJO). The final coding scheme contained 10 influenza vaccine communication behaviors (Appendix B). The two investigators (JDR, DJO) then conducted a 1.5-day, in-person training for 4 coders (AH, KL, MC, NE) on the final coding scheme using 28% of the data. Intercoder reliability was tested on an additional 40% of the data, with κ ranging from 0.71 to 1.0 (mean κ = 0.83). All 4 coders coded the remaining data independently. Discrepancies were resolved by independent review and subsequent discussion by JDR and DJO. Coders were blinded to parental PACV scores.

2.4.2. Variables

The primary dependent variables were parental verbal acceptance (or not) of influenza vaccine for their child by the visit's end, assessed at the time of coding, and parental visit experience. For the latter, individual responses on the 15-item visit experience measure were scored from 1 ("very poor") to 7 ("outstanding") and summed in an unweighted fashion to calculate a total raw score (range: 15–105). A highly rated visit experience was denoted by a score ≥90, whereas a lower rated visit experience was denoted by a score <90 [9]. Five parents had missing visit experience responses. Adjusting the total score by number of questions answered did not alter the findings; thus, the total raw score was used for all analyses. Two alternative approaches to scoring the visit experience measure were also used. First, a different dichotomization threshold was used, consistent with the top-box scoring method used in Consumer Assessment of Healthcare Providers and System measures [16] and parent–patient experience research [17–19]. Parents who rated all 15 items with the highest response category (7) were coded as having a highly rated visit experience, while parents who rated any item <7 were coded as having a lower rated experience. Second, a separate visit experience variable comprised of only the 5 vaccine-related visit experience items was created with a total raw score range of 7–35 (see asterisked items, Appendix A). A highly rated vaccine-related visit experience was defined in two ways: (1) total score ≥30 (i.e., 6 or 7 on all 5 items); and (2) total score ≥28 (the median total raw score). Neither alternative approach changed the findings; thus, only data using the first approach are presented.

Secondary outcomes included parental acceptance (or not) immediately after clinician initiation of the influenza vaccine recommendation and, if the parent voiced immediate resistance to this recommendation, parental acceptance (or not) immediately after clinician pursuit (if present). Verbal resistance was coded when a parent: (1) rejected the clinician recommendation explicitly (e.g., "*I don't do the flu shot*"); (2) demurred (e.g., "*I don't know*"); (3) proposed a contingency as an obstacle to acceptance (e.g., "*He has a birthday party tomorrow*"); or (4) raised questions or concerns in response to the recommendation (e.g., "*Do they have to have it?*"). Resistance types were dichotomized into explicit (code 1 above) *vs.* non-explicit (codes 2–4) rejections.

The primary independent variable was the communication format used by clinicians to initiate the influenza vaccine recommendation. As in our previous analyses [8,9], this was dichotomized into 'presumptive' and 'participatory.' Presumptive formats are linguistically designed to presuppose acceptance, biasing answers toward acceptance. Clinician declarations that influenza vaccine would be given (e.g., "*Today you're gonna do Hep A and flu*"), even if a 'tag question' was added to the end (e.g., "*And we'll do the flu vaccine. Is that okay?*"), were coded as presumptive (Appendix B). Participatory formats allow parents more decision-making latitude. They included polar interrogatives (e.g., "*Are we gonna do the flu vaccine today?*"), open interrogatives (e.g., "*How do you feel about the influenza vaccine?*"), and a format presupposing parents would not vaccinate (e.g., "*You could come back for flu*"). A secondary independent variable was clinician pursuit of their original recommendation when parents voiced initial resistance [8,9]. We

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