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Short Communication

“You’re never really off time”: Healthcare providers' interpretations of optimal timing for HPV vaccination

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1. Introduction

Rates of HPV vaccine initiation and completion are well below national goals (Stokley et al., 2014). The Centers for Disease Control and Prevention’s (CDC) recommended schedule is for routine HPV vaccination at ages 11 and 12, with catch-up vaccination up to age 26 for females and age 21 for males (Markowitz et al., 2014). A healthcare provider’s recommendation is the strongest known predictor of initiation and completion the 3-dose HPV vaccine series (Dorell et al., 2012; Kessels et al., 2012; Reiter et al., 2013a). However, many adolescents do not receive a recommendation (Reiter et al., 2013b; Vadaparampil et al., 2011). Previous research suggests that providers may be hesitant to discuss HPV vaccination with parents of young adolescents and more often deliver recommendations to older adolescents than to those ages 11 to 12, (Vadaparampil et al., 2011; McRee et al., 2014) suggesting that providers may not be interpreting guidelines as intended. We sought to understand how providers interpret and value age-based guidelines.

2. Material and methods

2.1. Data

We used data from two qualitative studies of HPV vaccination attitudes and practices among clinicians who provide preventive care, including vaccinations, to adolescents.

Data for study 1 (Minnesota) were collected through semi-structured, in-depth, face-to-face interviews with health care providers (n = 27) who saw adolescent patients in Minneapolis and St. Paul, MN between July and September 2012. We employed a purposive sampling strategy to ensure a diversity of perspectives based on clinician training, specialty, and clinic setting. We enrolled new participants and conducted interviews, meeting regularly to discuss findings, until we determined that interviews were no longer yielding new information.
the transcripts to discuss services almost 600,000 people. We conducted interviews and reviewed December 2014 through individual telephone interviews with a purposeful sample of primary care physicians (n = 17) in Group Health Cooperative, a regional integrated care system in Washington State that serves almost 600,000 people. We conducted interviews and reviewed the transcripts to discuss findings until we reached saturation. To explore providers’ perspectives on vaccination timeliness, we asked providers: “At what point do you worry that your patients won’t complete the HPV vaccine series?” Physicians did not receive any compensation. The Group Health Research Institute Institutional Review Board determined that this study was not human subject research.

2.2. Analysis

The two datasets remained independent. Interviews from both studies were transcribed verbatim. Transcripts were analyzed using content analysis methods, searching for specific references to HPV vaccine recommendation practices and how the vaccination schedule age-based recommendations were being interpreted in clinician practice. In the Minnesota dataset, two investigators (ALM, MBC) analyzed all the interviews with a targeted search. In the Washington dataset, two investigators (NBH, LT) analyzed the answers to the “when do you worry” question and also the remainder of the interview text. We then jointly analyzed the collective findings from both datasets through a series of analysis meetings, working via consensus to put the relevant results into meaningful descriptive categories. We identified exemplar quotes from each dataset.

3. Results

We analyzed interviews from a total of 44 providers (Table 1). For the Minnesota study, we approached 38 providers and conducted interviews with 27 (71%). The sample included 17 physicians and 10 nurse practitioners or physician assistants. Eighty-one percent (81%) were female, about half (48%) reported a pediatric specialty, and the most common practice setting was public clinic or community health center (48%). About half (48%) of providers reported spending at least 10 h per week providing clinical care to male or female adolescent patients.

In the Washington study we approached 31 physicians and conducted interviews with 17 (55%). The sample was 65% female and three quarters (76%) pediatricians. The mean time since medical school graduation was 30 years. Providers reported seeing between 2 and 60 adolescents per week.

3.1. Providers described a gradient of on-time HPV vaccination ranging from age 12 to age 26

The overarching theme in both samples was a perceived age gradient, not just for allowable vaccination, but for timely vaccination. Providers in neither sample interpreted age 12 as a hard rule for on-time HPV vaccination. Rather, increasing age was commonly described as a gradually pressing prompt toward recommendation of the vaccine. In the Washington sample, the only sample in which the question was asked directly, 13 of 17 providers (76%) reported that they do not worry about HPV vaccine series completion by age 12. Of these, nine (53%) reported not worrying at all and 4 (24%) reported not worrying until age 16 or later. Age 16 was the earliest age at which providers reported feeling urgency to initiate or complete the series, and some reported not feeling urgency until patients’ 20s (“you’re supposed to be able to finish it anytime, I think”). In the Minnesota sample several providers referred to a similarly extended window in which their patients were eligible for HPV vaccine, suggesting a common perception that “you are never really off time” for the vaccine. Exemplar quotes are presented in Table 2.

3.2. Providers refined their recommendations based on their perceptions of patients’ access to care and sexual risk

Instead of following a solely age-based recommendation, providers reported an individualized approach to timing their vaccine recommendations in which increasing age might be but one factor. Many providers reported either relaxed approach earlier in adolescence (“I know I’ll see them again!”) or a more urgent recommendation as their patients approach transition out of high school or pediatric care as they may be “less likely to get [all of the shots]” once in college. Further, several providers in both samples reflected on their judgments of individual patients’ risk of sexual debut or of the sexual risk of their “patient population” more broadly, and a feeling that continued sexual naiveté justified delayed vaccination.

3.3. Providers perceived that a “gentler” recommendation honors parent preferences and builds long-term trust

As a logical progression from a perception of the “true” window for HPV vaccination extending to age 26, providers often reported deferring discussions or recommendations until subsequent visits, giving parents “permission to delay.” One provider reported “I would rather have them come in and have the discussion than not have them come in at all.” Several providers viewed the delay of HPV vaccine discussion as a way to build trust or “give control” to families with vaccine concerns, making the HPV vaccine decision one that extends over multiple visits. Some providers described wanting to avoid “a strong arm approach to vaccinating” and implied they would prefer to maintain a long-term, trusting relationship with families than potentially lose that relationship because of a disagreement about HPV vaccine.

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Table 1

| Participant characteristics, Minnesota (2012) and Washington (2015), USA. |
|---------------------------------|-----------------|-----------------|
| Sample                          | Mean (range)    | Mean (range)    |
|---------------------------------|-----------------|-----------------|
| **Sex**                         |                 |                 |
| Male                            | 5 (19)          | 6 (35)          |
| Female                          | 22 (81)         | 11 (65)         |
| **Profession**                  |                 |                 |
| MD                              | 17 (63)         | 17 (100)        |
| NP/PA                           | 10 (37)         | –               |
| **Practice affiliation**        |                 |                 |
| Pediatrics                      | 13 (48)         | 13 (76)         |
| Family medicine                 | 14 (52)         | 4 (24)          |
| Hospital/medical center         | 13 (48)         | –               |
| Practice network/HMO            | 5 (19)          | 100 (100)       |
| Private, independent practice   | 7 (26)          | –               |
| **No. years post-training**     |                 |                 |
| Minnesota sample (n = 27)       | 7 (2–49)        | 30 (9–42)       |
| Washington sample (n = 17)      |                 |                 |

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\( a \) Only MDs were interviewed for the WA sample.

\( b \) All clinicians in the WA sample were part of a single practice network.

\( c \) Post residency/PGY1 for MN sample, post medical school graduation for WA sample.
4. Discussion

In this secondary comparative analysis of qualitative data from healthcare providers in two samples, we found that a high proportion of providers reported either a lack of concern about HPV vaccine completion or concern beginning several years past the CDC’s recommended target age. Our findings are consistent with other work suggesting that providers may find practice guidelines ambiguous. In one study, a third of physicians said guidelines were unclear, and this perception was associated with lower intention to recommend HPV vaccine to girls (Kulczycki et al., 2015). Another study found that 45% of providers found national or local guidelines for HPV vaccine are unclear (Bruno et al., 2014). The present exploratory study further extends the current literature with its focus on providers’ attitudes about the timeliness of series completion. This is particularly important as one-third of those who have received at least 1 dose of HPV vaccine do not complete the series (CDC, 2015).

Healthcare provider recommendation of HPV vaccine is the strongest, most consistent influence on parents’ decisions about HPV vaccination for their adolescent children (Dorell et al., 2012; Kessels et al., 2012; Reiter et al., 2013b). Previous research highlights constructs important to a high-quality recommendation including: timeliness (recommending by age 11–12), consistency (avoiding a risk-based approach), urgency (same day immunization) and strength of endorsement (saying the vaccine is important) (Gilkey et al., 2015). The present study provides insights into providers’ perceptions and practices related to these constructs. We found evidence for a notable lack of concern for “timeliness” in recommending the vaccine at target age.
This perspective offers a striking contrast to providers’ perceptions of early childhood vaccinations, where the use of catch-up schedules are considered inferior to “on time” vaccination. Additional research is needed to develop messages that better communicate to providers the rationale behind and health benefits of “on time” HPV vaccination by age 12.

Optimal HPV vaccine recommendations should be universal at the targeted age, not risk-based, to complete vaccination before sexual debut (Dempsey, 2008). Providers in our study reported urgency about recommending HPV vaccination on suspected patient sexual activity, consistent with other research (Perkins et al., 2014; Gilkey and McRee, 2016a). However, we also found that providers may gradually increase the strength of their recommendations as their patients are aging out of pediatric care or at risk of inconsistently accessing health services as they transition out of high school. This concern about access to care is not without empirical basis, as young adults have lower levels of health service use than adolescents (Park et al., 2014). Future interventions should explore messaging that motivates providers to recommend HPV vaccination well before anticipated care transitions.

Some providers reported offering “gentler” recommendations by deferring or readily accepting delay. This is a reasonable position for a provider who sees age 26 as timely vaccination, but parents may prefer clear, unambiguous messages that HPV vaccination is important (Gilkey and McRee, 2016b). Research in early childhood vaccine hesitancy suggests that trust-based interventions may be insufficient to change parental vaccine attitudes (Henrikson et al., 2015a; Henrikson et al., 2015b) and that strong recommendations may be effective for improving vaccine coverage in the short term (Opel et al., 2016). Thus, softer or deferred HPV vaccine recommendations may actually undermine vaccine recommendations. Future interventions can explore the impact of different recommendation styles, HPV vaccination behavior, and long-term trust.

Strengths of this study include the use of analytic triangulation to compare findings across two independent samples of primary care providers; the high degree of convergence we found across geographic regions and practice settings increases the credibility and transferability of our findings. Limitations include the focused nature of our study, in which we searched for evidence around a construct—physicians’ conceptualization of HPV vaccination timelines. The sample size, while small, was consistent with the exploratory, qualitative nature of our study. These findings may not be generalizable to settings outside the U.S. or to all U.S. health care settings or providers. We acknowledge also that the multifactorial nature of provider communication style, patient preferences, and clinical policies are also important for understanding providers’ ability to effectively deliver HPV vaccine recommendations.

5. Conclusion
Coverage of HPV vaccine continues to fall well below the national goal of 80% (U.S. Department of Health and Human Services, 2013). Our study identifies ways that providers deviate from practice guidelines, suggesting that few health care providers prioritized the goal of HPV vaccine series completion for patients by age 12. Further, many providers appear to interpret on-time completion as age 26, not as 11 to 12 with an accompanying catchup schedule as is recommended. It is logical, then, that they would only feel a sense of urgency as their patients approach their 20s, as suggested in this study. If confirmed with other work, future provider communication interventions could include stressing age of 11 to 12 for on-time HPV vaccine completion. Interventions that seek to change the cultural norm to one where “catch-up” schedules are seen as suboptimal may offer particular promise. Given the importance of the CDC-recommended vaccine schedules in the United States, the intent behind the recommendation should be clearly communicated and not left to individual interpretation.

Transparency document
The Transparency document associated with this article can be found, in online version.

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Conflicts of interest: The authors have no conflicts to declare.

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