

## "A Day Late and a Dollar Short": Physicians and HPV Vaccination

Gregory D. Zimet

See related article by Gilkey et al., p. 1673

The results of the 2014 U.S. National Immunization Survey–Teen (NIS-Teen) indicated very modest increases in human papilloma virus (HPV) vaccination rates for 13- to 17-year-old females, with series initiation at 60%, a 3.3% increase over 2013 (1). Furthermore, among girls who initiated vaccination, the 3-dose completion rate actually dropped very slightly from 69.8% in 2013 to 69.3% in 2014. For males, initiation of HPV vaccination was 41.7%, an 8.1% increase over the 2013 rate. Among boys who initiated vaccination, the 3-dose completion rate also improved from 48.2% in 2013 to 57.8% in 2014. It is important to note that rates for the targeted ages of 11 to 12 years are even lower. Clearly, we are far from meeting the Healthy People 2020 goal of 80% 3-dose coverage for HPV vaccination (2). It is well-recognized and documented that a strong, routine health care provider (HCP) recommendation is associated with higher rates of HPV vaccination (3, 4). Conversely, parents frequently cite the lack of an HCP recommendation or a weak recommendation as among the most important reasons for nonvaccination of sons and daughters (5, 6).

The research reported by Gilkey and colleagues (7) in this issue of *Cancer Epidemiology, Biomarkers & Prevention* represents an important contribution to the growing body of information on HPV vaccination practices of primary care physicians, a topic previously addressed in reviews of the literature (6, 8) and in recent research publications (9–14). As in these other research studies, Gilkey and colleagues, via a national survey of pediatricians and family physicians, found that many of these HCPs were inconsistent in their approaches to HPV vaccination, often delayed vaccination past the recommended ages of 11 to 12 years, and generally failed to strongly recommend vaccination. A unique element of this research paper is the development of an index of overall HPV vaccination recommendation quality, an approach that may prove valuable, conceptually, in the development and implementation of interventions to improve the effectiveness of HPV vaccine recommendations. The dimensions that make up the quality index are: timeliness (HPV vaccine recommendation at 11–12 years of age); consistency (recommending vaccination of all eligible children, not using a risk-based approach); urgency (recommending same-day vaccination); and strength of endorsement (emphasizing the importance of HPV vaccina-

tion). The authors note that about half of the physicians they surveyed self-reported at least two lower quality approaches to HPV vaccine communication. It is particularly noteworthy that over half used risk-based approaches to HPV vaccination, recommending the vaccine based on a sense of a child's behavioral risk for HPV infection, which is not an effective approach to vaccination.

There are a number of lessons to be taken from this study. First of all, though the findings indicate generally problematic approaches to HPV vaccination, the results are based on self-report surveys, which may have been subject to social desirability/self-presentation bias. The picture painted by this article, therefore, may be a best-case scenario. Physicians' actual approaches to HPV vaccine communication may be even more ineffective than those characterized by Gilkey and colleagues. Several research teams across the United States are undertaking studies involving content analysis of audio-recorded physician–parent–patient conversations about HPV vaccination, much like a study published by Goff and colleagues in 2011 (15). These studies will help immeasurably to flesh out the story told by Gilkey and colleagues and others and, depending on the methodology employed, may be less subject to social desirability bias. In addition, as noted by the authors, it will be important to examine HPV vaccine communication approaches used by nurses and pharmacists who increasingly play a very important role in vaccine delivery.

The results presented in this article also remind us of the importance of developing, testing, and implementing interventions designed to improve physicians' comfort, skills, and practices with HPV vaccination strategies. Many of the research studies evaluating educational/behavioral interventions have focused on parents/patients (16). However, more recently, several researchers have examined intervention strategies directed at HCPs. A randomized 3-component electronic health record (EHR) intervention, for instance, significantly increased first dose administration of HPV vaccine from 16% in the control group to 24% in the clinician-focused decision support group (17). Similarly, two relatively intensive multi-component provider-focused interventions also resulted in significant, though somewhat modest increases in HPV vaccination rates (18, 19). Using a retrospective cohort design, Ruffin and colleagues found that practices that had an EHR reminder prompt system had higher HPV vaccine rates than practices without an EHR prompt (20). In contrast, a recently published randomized study of EHR prompts found that they had no effect on HPV vaccination rates (21). This set of studies represents early efforts to evaluate potential HCP-focused interventions, with mixed results. Clearly, additional work is needed. As noted above, it may be instructive to take guidance from Gilkey and colleagues to focus intervention development on their four elements of quality HPV vaccine communication: timeliness, consistency, urgency, and strength of recommendation. To reach the Healthy People 2020 goal of 80% HPV vaccination coverage

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(2), it will be essential to help HCPs more effectively deliver HPV vaccination, but it will also be important to develop effective interventions on multiple other levels, including vaccine policy initiatives, practice guidelines and benchmarks, social marketing and public awareness campaigns, and parent- and patient-focused interventions.

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