



Human Papillomavirus Vaccination: Narrative Review of Studies on How Providers' Vaccine Communication Affects Attitudes and Uptake

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ABSTRACT

The burden of human papillomavirus (HPV) infections is substantial, causing thousands of cancers and deaths in the United States yearly. Safe and effective vaccines exist, yet remains underutilized, particularly among younger adolescents for whom the vaccine is targeted. Provider communication techniques are known to affect parents' and adolescents' acceptance of this vaccine. In this review, we examine the influence that provider communication techniques have on parental attitudes regarding HPV vaccine, as well as how those techniques affect vaccination uptake. We explore the limited literature that has directly measured the influence of provider communication techniques on parental attitudes, which suggests that the strength of a provider recommendation strongly influences parents' perceptions regarding the safety of HPV vaccine, and that brief recommendations might be best for parents without signif-

icant concerns. We also review the literature regarding the use of so-called 'presumptive' recommendations, and how these types of recommendations are associated with increased HPV vaccine uptake. Finally, we present new information regarding the use of motivational interviewing as a provider communication technique to improve vaccination uptake, particularly among vaccine-hesitant parents. We close with suggestions for 'best practices' that include using brief, strong, unambiguous language to introduce the HPV vaccine, followed by more nuanced communication techniques, such as motivational interviewing, when encountering resistance.

KEYWORDS: adolescent; communication; human papillomavirus; provider; vaccination

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HUMAN PAPILOMAVIRUS (HPV) infections result in more than 35,000 cases of cancer in the United States annually,^{1,2} as well as millions of cases of cervical precancer and genital warts.³ Effective vaccines against the most clinically important strains of HPV have been available in the United States for several years but are greatly underutilized, especially among adolescents who are the preferred target population for vaccination.⁴ In fact, the Centers for Disease Control and Prevention estimates that for every year we remain at our currently low vaccination levels, more than 4000 adolescent girls will go on to develop cervical cancer in their lifetime.⁵ When the potential failure to protect against male HPV-related cancers, genital warts and abnormal pap smears are added, the public health effects of low HPV vaccination among adolescents are staggering.⁶ The President's Cancer Panel has identified finding mechanisms to increase adolescent HPV vaccination a public health priority.⁷

Much research has focused on understanding the reasons underlying low adolescent HPV vaccination rates in the

United States. Conceptually this can be broken down into 3 main categories: suboptimal provider recommendations for the vaccine, parental reluctance to allow their adolescent to receive it, and "systems factors" affecting adolescents' ability to access and afford the vaccine. This article focuses on the first 2 of these factors, provider recommendation and parent attitudes. These factors might be interactive—that is, how the provider recommends the vaccine could affect parents' HPV vaccination attitudes and acceptance, and the prevailing attitudes providers encounter might affect the way they typically recommend the vaccine.⁸ However, there is very little research that directly examines whether and how providers' HPV vaccine communication practices affect parents' HPV vaccination attitudes. This article highlights the few studies that have directly examined this association.

More research exists on how provider communication affects adolescent HPV vaccine uptake (regardless of its intermediate effect on parents' attitudes). One can surmise

that when the HPV vaccine is accepted, parents' attitudes must be reasonably positive. Thus, because of the paucity of research that directly examines how provider communication affects parents' HPV vaccination attitudes, also included in this article are highlighted studies of provider communication strategies that increase HPV vaccine uptake as an indirect measure of parents' attitudes. By examining provider communication strategies for effectively improving parents' attitudes about the vaccine and/or vaccine utilization, we can begin to define "best practices" for vaccine communication in the future.

WHY FOCUS ON PROVIDER RECOMMENDATIONS?

Numerous studies have shown that a provider recommendation is one of the strongest predictors of adolescent HPV vaccine uptake,^{9,10} and that the medical provider is one of the most trusted sources of HPV vaccine information.^{11,12} However, parents report lack of a provider recommendation as a main reason their adolescent, male or female, has not received the HPV vaccine.^{13,14} At its surface it seems like the solution to this should be simple—have all providers make HPV vaccine recommendations. However, the truth is that simply "making a recommendation" is not sufficient. The specific language the provider uses and the tone they use to communicate their recommendation can have major effects on the likelihood that a vaccine is received.^{15,16} Numerous studies have now shown that providers often recommend the HPV vaccine in a way that is distinctly different (and seemingly less effective) than for other adolescent vaccines.^{14,16,17} A number of reasons underlying the variability in providers' recommendations have been elucidated, including provider perception that parents will be more resistant to this vaccine than others, discomfort at having to potentially discuss the sexual transmissibility of the vaccine, and their own biases about the importance of the HPV vaccine compared with other vaccines.^{18,19}

Gilkey and colleagues have attempted to define what constitutes a "high quality" HPV vaccine recommendation and have identified 4 essential components that seem to vary significantly between providers and could therefore be impactful: 1) timeliness—routinely recommending the vaccine starting when the patient is 11 to 12 years old, 2) consistency—recommending the vaccine for all eligible adolescents instead of preferentially vaccinating those perceived at high risk for infection, 3) urgency—recommending that the vaccine is given the same day it is discussed, and 4) strength—using unambiguous language that clearly conveys the importance of the vaccine.²⁰ In addition to these 4 quality components, introducing the vaccine as though the provider expects the parents will agree to it (called the "presumptive" or "announcement" approach) rather than as being potentially optional (called the "participatory" or "conversational" approach) has also been suggested as a preferred communication strategy by others.²¹ Unfortunately, many providers' recommendations fail to incorporate these practices.^{15,22} For example, in a national study of primary care providers done in

2014, 59% used a risk-based approach for deciding when to recommend the vaccine, 49% recommended the vaccine be given "at a later visit," and 26% and 39% did not routinely recommend the vaccine for 11- to 12-year-old girls and boys, respectively.²⁰ Clearly there is a need for providers to improve how they recommend the vaccine.

STUDIES THAT HAVE DIRECTLY EXAMINED THE EFFECT OF PROVIDER RECOMMENDATIONS ON PARENTS' ATTITUDES

In our review of the literature, we could find only 2 studies that directly examined how providers' communication strategies relate to parents' specific HPV vaccination attitudes. In one, Staras and colleagues surveyed a sample of 2422 parents of 9- to 17-year-old children enrolled in Florida's Medicaid and Children's Health Insurance Programs.²³ This study, done in 2010 and 2011, specifically assessed associations between the strength of a providers' recommendation and parents' perceptions of HPV vaccine safety, side effects, likelihood that girls would have sex if vaccinated (boys were not included), and the vaccine's benefits in preventing HPV-related diseases. Strength of the provider recommendation was parent-reported and assessed on 3 domains—whether the provider talked about the vaccine, recommended it, and "expressed importance" for vaccination. The authors reported that among parents who received a strong recommendation, vaccination attitudes were more positive. For example, parents who received a strong recommendation had 7 times the odds of agreeing that the HPV vaccine is safe, and 2 times the odds of agreeing they were not concerned about side effects compared with parents who had not received a strong recommendation. Assessment of the electronic medical record verified that the pro-vaccine attitudes of parents were strongly associated with an increased likelihood of adolescent HPV vaccine receipt. The authors of this study concluded that providers' vaccine discussions can have a major effect on parents' attitudes about the HPV vaccine's safety and ability to prevent illness, resulting in higher adolescent HPV vaccination rates.

In the second, smaller, qualitative study, Niccolai et al interviewed a sample of 38 low-income racial and ethnic minority parents/guardians of 10- to 18-year-old children.²⁴ Although the study focused primarily on parents' knowledge and attitudes, some data were provided on how provider communication affected these outcomes. They reported that for parents initially unaware of the vaccine, provision of brief basic information about the vaccine resulted in most parents believing the vaccine was important and that they would want their child to receive it. However, this enthusiasm was diminished in situations in which the provider recommended the vaccine as "optional," because this led some parents to then perceive the vaccine as a "low priority." This study highlights how even subtle changes in providers' communication about HPV vaccination might have a major effect on parents' vaccination attitudes, and suggests that for many parents, especially those with little to no vaccination concerns, brief endorsements might be preferred.

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