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## Short communication

## Physicians' rhetorical strategies for motivating HPV vaccination

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## ABSTRACT

**Rationale.** Receiving a healthcare provider's recommendation is a well-documented predictor of human papillomavirus (HPV) vaccination, and yet recommendations remain understudied and undertheorized. **Objective.** To qualitatively describe strategies providers use to motivate HPV vaccination. **Method.** We surveyed a national sample of 771 U.S. primary care physicians. Data came from an open-ended item that assessed physicians' perspectives on the most effective thing they could say to persuade parents to get HPV vaccine for their 11- to 12-year-old children. Using a standardized codebook and two independent coders, we conducted a thematic analysis to identify rhetorical strategies underlying physicians' responses. **Results.** We identified two sets of strategies for motivating HPV vaccination. One set drew parents' attention to specific actors or vaccine characteristics. Physicians using these strategies asked parents to consider their children's individual risk in the short-term, named specific diseases that could be prevented, emphasized the novelty of HPV vaccine as a cancer prevention tool, and gave their personal endorsement for HPV vaccination. In contrast, the second set of strategies was more distancing and impersonal. Physicians using these strategies referenced future risk, described cancer prevention in general terms, framed HPV vaccine as similar to other vaccines, and shared organizational endorsements for HPV vaccination. Across these two sets of strategies, a tension emerged between the goals of engaging parents' perceptions of HPV as a threat to their children versus framing HPV vaccination as a normative standard of care. **Conclusions.** Our findings suggest that theoretical frameworks, such as Construal Level Theory, may be helpful for positioning provider recommendations in the broader literature on persuasive communication. By identifying competing approaches to motivating HPV vaccination, this study lays the groundwork for future research to test the acceptability and impact of strategies for recommending routine preventive care.

## 1. Introduction

Receiving a healthcare provider's recommendation strongly predicts uptake of routine preventive services, yet providers often fail to recommend preventive care effectively (Gilkey et al., 2015; Lafata et al., 2011; Radhakrishnan et al., 2017). In the case of human papillomavirus (HPV) vaccination, adolescents whose parents receive a provider's recommendation have about nine times higher odds of starting the multi-dose series (Brewer et al., 2011; Kester et al., 2013; Lau et al., 2012; Lu et al., 2019; Reiter et al., 2013). Recommendations are far more influential than other commonly studied determinants of HPV vaccination, including vaccination beliefs, race/ethnicity, or access to care (Brewer et al., 2011; Kester et al., 2013; Lau et al., 2012; Reiter et al., 2013). Unfortunately,

only about one-third of parents report receiving a high-quality recommendation, in which a provider unambiguously endorses HPV vaccination, offers same-day vaccination, and emphasizes the vaccine's prevention benefits (Gilkey et al., 2016). As a result, public health leaders, including the Centers for Disease Control and Prevention and the American Academy of Pediatrics, have prioritized provider communication training in their national campaigns to improve the delivery of HPV vaccine (AAP, 2020; CDC, 2020a).

The success of these and other provider outreach efforts is predicated on understanding what effective communication about HPV vaccination entails, and yet from a conceptual standpoint, our knowledge of how providers recommend preventive services is limited. A large body of existing research helps to locate providers in the sociocultural context

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of vaccine hesitancy and decision making, identify clinical interventions to increase vaccine uptake, and describe the cultural and cognitive factors that influence parents' risk perceptions (Brewer et al., 2017; Dubé et al., 2013; Kahan et al., 2010). However, researchers have only rarely focused on recommendations as a topic of study in their own right. Instead, quantitative studies have typically considered recommendation receipt as a dichotomous variable used to model HPV vaccine uptake (Brewer et al., 2011; Lu et al., 2019; Reiter et al., 2013), while qualitative studies have engaged small numbers of providers or parents to identify communication practices that may be especially promising or problematic (Hughes et al., 2011; Perkins et al., 2014; Sundstrom et al., 2019). Missing from the literature is a more holistic understanding of the range of strategies that providers use to motivate HPV vaccination, which could be helpful for positioning provider recommendations within the broader literature on persuasive communication. To address this gap, we conducted a qualitative thematic analysis, using data from a large, national sample of primary care physicians, to identify and describe rhetorical strategies they use to motivate HPV vaccination. By examining the breadth of recommendation practice, this study seeks to inform future message testing with parents as to the acceptability and effectiveness of these strategies, while more broadly advancing our conceptual understanding of how physicians communicate about routine preventive care.

## 2. Method

### 2.1. Participants and procedures

We conducted a national survey of U.S. pediatricians and family physicians in April through June 2014. Participants were members of a non-probabilistic, online panel of physicians maintained by the survey research company GfK (Gilkey et al., 2015). Panel members were eligible to complete the survey if they reported providing preventive care, including vaccinations, to 11- and 12-year-old patients. Physicians received up to \$45. The University of North Carolina Institutional Review Board approved the study protocol.

Of 2368 panel members invited to participate, 1022 physicians (43%) visited the survey website. Of these, 776 physicians (76%) confirmed their eligibility and provided informed consent. We excluded participants ( $n = 5$ ) who did not provide data on our study's primary measure of effective communication. Our final sample consisted of 771 physicians.

### 2.2. Measures

Our survey assessed physicians' approaches to communicating with parents about HPV vaccination with an open-ended question: "What is the most effective thing to say to parents to persuade them to get HPV vaccine for their 11-12-year olds?" Physicians provided a free text response, with responses ranging from 1 to 93 words (median = 8 words). The full survey instrument is available at <http://noelbrewer.web.unc.edu/files/2016/02/physician-survey.pdf>.

### 2.3. Analysis

We conducted a thematic analysis in the manner described by Patton to identify and describe strategies that physicians use to motivate HPV vaccination (Patton, 2002). First, three authors (MG, MH, NB) independently conducted open coding to identify topic areas within the data. Through a process of consultation, we then synthesized codes into a codebook, and two authors (MG, MH) independently applied the codes to each response ( $kappa = 0.90$ ). If a response indicated the use of more than one strategy, we applied all applicable codes. We resolved discrepancies through discussion. Next, we worked code-by-code to describe the strategies that underpinned physicians' recommended messages for motivating HPV vaccination. We focused our analysis on areas of divergence in the data, which could indicate competing

strategies for recommending HPV vaccination (Lincoln and Guba, 1985; Patton, 2002). After completing an initial draft of our findings, we reread responses to test findings and check for dissenting views, or "negative cases," that suggested the need for additional analysis (Lincoln and Guba, 1985; Patton, 2002; Sandelowski, 1986).

## 3. Results

### 3.1. Sample

Among the 771 physicians in our sample, just over half were pediatricians (53%) and about two-thirds were male (68%, Table 1). Physicians were distributed among Northeast, Midwest, South, and West regions of the U.S.

### 3.2. Rhetorical strategies

**Prevention benefits.** Physicians frequently framed HPV vaccination as an opportunity for disease prevention but differed in the detail they provided ( $n = 568$ , 74%, Table 2). One strategy involved naming *specific* diseases that HPV vaccination could prevent. Most often these included cervical cancer and genital warts, but physicians also named oral, throat, neck, oropharyngeal, anal, penile, vulvar, and vaginal cancers. In contrast, a *general* strategy for discussing prevention benefits involved referencing "cancer prevention" or simply "cancer." Some physicians typed this one-word response in capital letters, implying that no further detail was needed. Other physicians did not specify a cancer or genital warts, but rather made even broader references to "disease prevention," "preventive medicine," or the need to "prepare for anything."

**Timing.** Some physicians' strategies for motivating HPV vaccination included reasons for vaccinating at ages 11 and 12 rather than later ( $n = 137$ , 18%). Most often, physicians invoked a *behavioral rationale for timeliness*, or the need to vaccinate before the onset of sexual activity and subsequent HPV exposure. This strategy could include direct references to sex (e.g., "It's good to complete the series before kids are sexually active"), but could also take more indirect forms (e.g., "Get it before you need it"). In contrast, other physicians emphasized a *physiological rationale for timeliness*, citing evidence that immune response to HPV vaccination is stronger for younger adolescents and that the vaccine may, therefore, "work better" at younger ages. Still, others referenced the recommended immunization schedule, saying, for example, "We give this vaccine at this visit." Across these strategies, physicians emphasized the convenience of on-time versus late vaccination when "an adolescent's life can get so busy," as well as the peace of mind derived from making the most of what might be a limited-time opportunity for cancer prevention: "You cannot give [HPV vaccine] too soon, but you can give it too late."

**Table 1**  
Sample characteristics ( $n = 771$ ).

	<i>n</i>	(%)
Medical specialty		
Pediatrics	409	(53)
Family practice	362	(47)
Sex		
Male	525	(68)
Female	246	(32)
Years in practice		
$\leq 19$	349	(45)
$\geq 20$	422	(55)
Adolescent patients seen in typical week		
$\leq 9$	128	(17)
10–24	349	(45)
$\geq 25$	294	(38)
Region		
Northeast	183	(24)
Midwest	163	(21)
South	274	(35)
West	151	(20)

**Table 2**  
Competing strategies physicians use to motivate HPV vaccination.

	Strategies corresponding to personal, lower-level construal (n)	Strategies corresponding to general, higher-level construal (n)
Prevention benefits	<b>Specific</b> (181) "It will protect your child from getting a virus that causes cervical cancer (in girls) and genital warts and anal cancer (in boys)."	<b>General</b> (262) "[HPV vaccine] reduces the risk of CANCER!"
Timing	<b>Physiological</b> (20) "[Their] immune system works best at this age and that is why we recommend [HPV vaccine] now ..."	<b>Behavioral</b> (58) "It is important to get the vaccine before it is needed, so that's why I recommend it at the 11–12 year visit."
Sexual activity	<b>Patients'</b> (14) "Kids usually don't share their thoughts on sex or their level of curiosity, which can lead to action. Don't want to judge, but ... best to be safe."	<b>Future partners'</b> (14) "While [your] child may never have sex with anyone but their spouse on their wedding night, their spouse may have had a one-time occurrence in the past (college) and put [your] child at risk."
Endorsement	<b>Personal</b> (27) "I think, as a physician, [HPV vaccination] is important."	<b>Organizational</b> (47) "It is recommended by the AAP and the CDC as part of routine vaccination."
Vaccine comparisons	<b>Novel</b> (31) "I described the vaccine as an amazing breakthrough."	<b>Similar</b> (16) "Similar to other vaccines, the goal is to protect [the] child in the future."
Experience	<b>Personal</b> (34) "My own children, both my daughters and son, have gotten HPV vaccine. It confirms how important and safe I feel the vaccine is."	<b>Professional</b> (5) "I have seen this infection repeatedly .... [HPV vaccine] will help protect them."

**Sexual activity.** Among physicians who referenced sexual activity ( $n = 113$ , 15%), some discussed sex by emphasizing that adolescents' behavior is difficult for parents to predict or control. This strategy could involve raising uncertainty about the *patient's behavior*. Physicians using this strategy used statements such as, "[You] cannot necessarily control [your child's] sexual activity, but [you] can prevent a negative consequence." To avoid implying suspicion or blame, some physicians attempted to soften this strategy by specifying that their intention was not to "judge," but rather to act out of an abundance of caution. In contrast, other physicians focused on the uncertainty of *future partners' behavior*. This strategy involved pointing out that the patient, regardless of his or her own behavior, could be infected with HPV by a future spouse. For example, one physician stated, "Your child is in control of their body and the choices they make; however, they are not in control of their future spouse's body or choices." With references to spouses and wedding nights, physicians using this strategy attempted to preserve the notion that the adolescent might not be sexually active until marriage, again with the aim of "tak[ing] the morality out of the question."

**Endorsement.** Some physicians motivated HPV vaccination by endorsing it as important ( $n = 100$ , 13%). One strategy was to give a *personal endorsement* in which physicians used first-person statements to reference their own views on HPV vaccination. Personal endorsements ranged from strongly worded (e.g., "I strongly recommend it") to more measured (e.g., "I personally feel [HPV vaccination] is very important, but [parents] have the option not to give it"). An alternative strategy involved giving an *organizational endorsement*, in which physicians cited the routine vaccination schedule recommended by public health agencies. Physicians using this strategy sometimes named a specific organization (e.g., "AAP recommends it"), but more often made indirect references to the vaccination schedule recommended by these organizations. For example, "It is a recommended vaccine" or "Your child is due." The passive construction of these statements served to invoke the authority of the broader medical profession, while also distancing the individual physician and patient from the recommendation.

**Vaccine comparisons.** Some physicians motivated HPV vaccination by drawing comparisons between HPV vaccine and other vaccines ( $n = 57$ , 7%). Most commonly, they described HPV vaccine as a *novel vaccine*, like "no other" or among the "first of its kind" to prevent cancer. These comparisons framed HPV vaccine as the product of cutting-edge science and were typically indirect, although a few physicians compared HPV vaccine to hypothetical innovations, such as a breast cancer vaccine. Conversely, other physicians framed HPV vaccine as *similar to other vaccines*. This strategy avoided "singling out" HPV vaccination as "something questionable." These comparisons were more often direct, with physicians naming HPV vaccine along with other recommended adolescent vaccines such as tetanus, diphtheria, and acellular pertussis

(Tdap) or meningococcal vaccines.

**Experience.** Some physicians reported referencing their experience to motivate HPV vaccination ( $n = 39$ , 6%). Most commonly, they invoked their *personal experience* of getting, or planning to get, HPV vaccine for children in their own families (e.g., "I have given it to both my kids"). With these statements, physicians aimed to normalize HPV vaccination and communicate confidence in its safety. Other physicians instead drew on their *professional experience* by relating how they had seen families affected by HPV infection or associated diseases in their practice (e.g., "I tell parents about a patient who came down with genital warts during her first sexual encounter"). The aim of this strategy was to heighten parents' perceptions of risk.

**Barriers.** Some physicians attempted to address perceived barriers to HPV vaccination in their motivational statements ( $n = 44$ , 6%). The most common topic in this regard was vaccine safety, which physicians rarely mentioned alone, but rather paired with other vaccine attributes. For example, they might describe HPV vaccine as "safe and effective." A few physicians also addressed the barrier of cost by noting that the vaccine was "free" or "covered by insurance." We did not identify divergence in the data in this category; attempts to address barriers uniformly framed HPV vaccination as part of routine care. Thus, the barriers category is not included in Table 2.

#### 4. Discussion

The findings of this national study suggest that primary care physicians use a wide range of strategies for motivating guideline-consistent HPV vaccination. Physicians commonly reported placing an emphasis on the prevention benefits of HPV vaccination, which is a strategy that parents also perceive as motivating and is recommended by the Centers for Disease Control and Prevention (CDC, 2020b; Gilkey et al., 2015; Gilkey et al., 2018). Other strategies fell within the categories of giving personal or professional endorsement, stressing the need for timely HPV vaccination, making comparisons to other vaccines, referencing the risky nature of adolescent sexual behavior, and invoking physicians' experience of HPV vaccination or HPV infection. The diversity of these categories confirms that persuasive communication about HPV vaccination takes a variety of forms, extending beyond dichotomous measures of provider recommendations commonly used in survey studies.

We found evidence of divergent strategies for motivating HPV vaccination within overarching categories. For example, in the case of prevention benefits, some physicians emphasized the prevention of specific diseases, such as cervical cancer, while others more generally referenced "cancer" or "prevention." Across categories, we noted that some of the strategies were more personal or specific (e.g., by naming a specific disease, giving a personal endorsement, focusing on HPV

vaccine specifically, or considering the patient's behavior), and the goal of these strategies often seemed to be to heighten parents' perceptions of risk. In contrast, other strategies were more generalized or psychologically distancing in that they emphasized prevention in general, gave organizational endorsements, focused on all adolescent vaccines, or considered the behavior of others. These strategies tended to normalize HPV vaccination as an unremarkable part of routine preventive care.

The tension between these approaches can be conceptualized using Construal Level Theory (CLT) (Trope and Liberman, 2003, 2010). CLT theorizes how people organize thoughts in high and low levels of construals or the psychological distance from an egocentric point of self and the present. In CLT, thinking about the self—or things, events, and ideas psychologically closer to the self and the present—represents low-level construal. This way of thinking is consistent with rhetorical strategies for motivating HPV vaccination that are more specific and present-oriented (Table 2). In contrast, thinking about others or events in the future requires abstraction or distancing from the self, which CLT terms high-level construal. This way of thinking aligns with rhetorical strategies that center on the abstract and long-term goal of protecting one's children from future HPV cancers.

CLT suggests that different strategies for motivating HPV vaccination may be needed at different times. Overall, CLT contends that high-level construals carry more weight than low-level construals, particularly when an outcome is distant and for one's child versus oneself (Peng et al., 2013; Trope and Liberman, 2010). In the case of HPV vaccination, the goal of cancer prevention would be assumed to carry more psychological weight with a parent than more peripheral, proximal concerns. A recent study by Kim and Nan found evidence to support this assertion; parents were motivated to get HPV vaccine for their children when presented with high-level construal messages that employed factual information (Kim and Nan, 2019). These investigators also found that low-level construals could be effective for motivating HPV vaccination when parents were presented with narrative information (i.e., stories) (Kim and Nan, 2019). This work could help physicians address parents' questions and concerns; when parents express specific concerns about HPV vaccination, they are moving from a higher-level construal to a lower level construal by bringing the discussion more proximal than an overarching goal of prevention.

Although we found that CLT provided an especially helpful framework for contextualizing our findings, the existing literature on risk perception and fear appeals offers other theories relevant to future work. Most notably, research using Protection Motivation Theory and the Extended Parallel Process Model suggests that fear appeals, such as low-level construals emphasizing adolescents' own sexual risk, are perhaps best avoided (Rogers, 1983; Witte, 1992). Such appeals best facilitate behavior change when accompanied by information that reassures parents and provides specific instructions for how to get HPV vaccine to protect their children (Rogers, 1983; Witte, 1992). In contrast to fear appeals, research on narrative interventions provides support for brief, "story-telling" approaches to discussing HPV vaccination, such as those used by Kim and Nan, to motivate HPV vaccination (Kim and Nan, 2019; Perrier et al., 2018).

Our findings suggest several areas for additional research. First, future studies can assess how often and consistently physicians use the rhetorical strategies identified in this study, how use varies by physician and parent characteristics, and the extent to which these strategies are effective for increasing uptake of HPV vaccine. Such work could ultimately help physicians prioritize rhetorical strategies and streamline their HPV vaccine communication with parents. Second, additional work is needed to understand how rhetorical strategies for recommending HPV vaccine compare to and can inform strategies for recommending other health services. For example, broadly effective strategies could be a powerful tool for increasing uptake of other underused vaccines, such as seasonal influenza vaccines, or novel vaccines, such as future COVID-19 vaccines. Lessons learned could also have implications for improving the delivery of other preventive services, such

as colorectal cancer screening, that are highly dependent on a provider's recommendation.

#### 4.1. Strengths and limitations

This study's qualitative approach was well suited to our goal of describing the range of strategies physicians use to motivate HPV vaccination, but findings should be interpreted in light of several limitations. Most notably, our data reflect physicians' self-report of the most effective strategies for motivating parents, which may differ from strategies they use in practice. Furthermore, given the dynamic nature of clinical communication, physicians likely adjust their HPV vaccine recommendations based on their perceptions of parents' priorities and values, and physicians may change strategies if their initial recommendation meets resistance. Although outside of the scope of the present study, understanding these dynamics is important for advancing the science on provider communication and vaccine hesitancy.

Our relatively large sample size provided a unique opportunity to capture diverse strategies for motivating HPV vaccination, as well as physician's natural language. By the same token, our study necessarily lacked the depth of other methods of qualitative inquiry, such as in-depth interviews or participant observation. Physicians' communication may have changed since our data were collected in 2014, with new strategies for motivating HPV vaccination emerging to address novel sources of vaccine hesitancy, such as those arising from the COVID-19 pandemic. Finally, our non-probabilistic sample was limited to pediatricians and family physicians; the transferability of our findings to nurses or other healthcare providers remains to be established.

#### 4.2. Conclusions

This study sought to broaden our understanding of how physicians employ persuasive communication to recommend HPV vaccination, finding that physicians use a wide array of rhetorical strategies. Mapping these strategies onto CLT's high- and low-level construal framework can provide a testable basis for measuring message effectiveness and acceptability. Given the centrality of provider recommendations in primary care, this line of research may have broad applications for supporting providers in communicating effectively about vaccines and other routine preventive care.

#### Credit author statement

Melissa Gilkey: Conceptualization, methodology, writing- original draft preparation, formal analysis, funding acquisition. Brigid Grabert: Writing- reviewing and editing, formal analysis. Teri Malo: Writing- reviewing and editing, formal analysis. Megan Hall: Conceptualization, writing- reviewing and editing, formal analysis, project administration. Noel Brewer: Conceptualization, writing- reviewing and editing, supervision, funding acquisition.

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#### Declaration of competing interest

NB has received HPV vaccine-related grants from or been on paid advisory boards for GlaxoSmithKline, Merck and Pfizer; he served on the National Vaccine Advisory Committee Working Group on HPV Vaccine and is chair of the National HPV Vaccination Roundtable. The remaining authors (MG, BG, TM, MH) have no conflicts of interest to report.

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