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# Primary care physician support for harmonizing HPV vaccination recommendations across genders — United States, 2018

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#### Abstract

In the United States, human papillomavirus (HPV) catch-up vaccination has been nationally recommended for women and men of different ages. We surveyed national networks of primary care physicians specializing in family medicine, pediatrics, and internal medicine to assess attitudes about HPV vaccination. Of 785 physicians, 730 (93.0%), were in favor of a change to harmonize the recommended catch-up vaccination age across genders; the most commonly cited reason was to simplify the immunization schedule (97.9%). After considering these and other data, the Advisory Committee on Immunization Practices updated national policy to recommend catch-up vaccination for all persons through age 26 years.

#### Keywords

Papillomavirus vaccines; Health policy; Physicians

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<sup>5.&</sup>lt;sub>Note</sub>

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### 1. Introduction

Human papillomavirus (HPV) infections cause anogenital warts, precancers, and cancers, including cervical, vaginal, vulvar, penile, anal, and oropharyngeal cancers [1]. In the United States, an estimated 92% of HPV-attributable cancers are vaccine-preventable [1]. The Advisory Committee on Immunization Practices (ACIP) recommends routine HPV vaccination for U.S. adolescents at age 11 or 12 years; catch-up HPV vaccination recommendations apply to people who were not vaccinated at the routine age [2]. Since 2006, ACIP has recommended vaccination for girls at the routine age of 11 or 12 years, and catch-up vaccination for females through age 26 years [2]. In 2011, ACIP added routine recommendations for boys at age 11 or 12 years, with catch-up vaccination for males through age 21 years [2]. Catch-up vaccination has also been recommended through age 26 years for men who have sex with men (including men who identify as gay, bisexual, or who intend to have sex with men), for transgender persons, and for persons with certain immunocompromising conditions such as HIV [3].

In the United States, HPV vaccination is provided mainly in a clinical setting by primary care physicians [4]. HPV vaccination coverage has been increasing among U.S. adolescents, but remains low among young adults. In 2018, coverage with 1 dose of HPV vaccine among 13–17 year-olds was 69% in females and 63% in males [5]; for 22–26 year-olds, it was 51% in women and 15% in men, reflecting the introduction of routine HPV vaccination for males five years later than the routine recommendation for females, with less time for vaccinated males to age into adulthood, as well as the differential catch-up vaccination recommendations for women and men in this age range [6,7]. Like many risk-based recommendations for vaccination [8], HPV vaccination recommendations for MSM and others have been implemented inconsistently [9].

During 2018–2019, based on interest in simplifying the immunization schedule, ACIP considered harmonizing HPV catch-up vaccination recommendations across all genders. ACIP recommendations are developed using an evidence-based method based on the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach, which uses an Evidence to Recommendation framework to summarize key factors including balance of benefits and harms, type or quality of evidence, values and preferences of the people affected, and health economic analyses (https://www.cdc.gov/vaccines/acip/recs/grade/about-grade.html). As part of assessing acceptability to key stakeholders as called for in this framework, we surveyed primary care physicians to assess their attitudes on simplification of HPV vaccination recommendations via harmonization of catch-up vaccination for all persons through age 26 years.

#### 2. Materials and methods

From January through April 2018, we surveyed U.S. physicians specializing in family medicine, pediatricians, and general internal medicine who spent 50% of their time providing primary care. The survey was administered by Internet and mail, according to respondent preference, to a national network of physicians representative of members of national physician organizations (American Academy of Family Physicians, American

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Academy of Pediatrics, and American College of Physicians) with respect to region, practice location, and setting. Surveys on attitudes about vaccine policy issues are administered as part of the Vaccine Policy Collaborative Initiative (VPCI). Detailed methods and validation have been reported previously [10,11]. The survey tool was jointly developed by the VPCI and CDC, and pilot-tested prior to fielding. We prepared a descriptive summary of responses using SAS version 9.4 (Cary, NC), with chi-square testing for differences by physician specialty. The Colorado Multi-institutional Review Board approved this study as exempt research.

#### 3. Results

A total of 1383 physicians were invited to participate in the survey; overall, 820 (59.3%) responded. By physician specialty, response rate was 319 (68.5%) for pediatrics, 266 (57.7%) for family medicine, and 235 (51.5%) for general internal medicine. Compared with non-respondents, respondents were similar by practice setting, urban/rural location, and level of practice decision-making (independent vs. larger health system), but were younger, more likely to be female, members of practices with more clinicians, and less likely to practice in the South (data not shown).

Overall, 467/798 (58.5%) respondents reported being aware of the difference in the ACIP recommendations for catch-up HPV vaccination of women compared to men. By specialty, 174/313 (55.6%) pediatricians, 148/255 (58.0%) family physicians, and 145/230 (63.0%) general internists reported being aware of this difference (p = 0.22).

Among physicians who were aware of the difference and responded to subsequent questions, 123/464 (26.5%) respondents felt that current catch-up recommendations with different upper ages for women and men have caused challenges or confusion in their practice. By specialty, 25/171 (14.6%) pediatricians, 55/148 (37.2%) family physicians, and 43/145 (29.7%) general internists reported challenges or confusion (p < 0.0001).

Most primary care physicians, 730/785 (93.0%), were in favor of a change to harmonize the recommended age for catch-up vaccination to include everyone through age 26 years. By specialty, 296/309 (95.8%) pediatricians, 233/252 (92.5%) family physicians, and 201/224 (89.7%) general internists were in favor of this change.

Overall, 724 physicians who favored harmonization reported reasons including believing it would simplify the immunization schedule (97.9%), be easier to implement (94.5%), be easier to explain to patients (93.8%), facilitate reaching high-risk populations (85.5%), reduce burden on health care providers (77.1%), and create equity between genders (58.0%). (Table 1) Among 52 physicians who did not favor harmonization, reported reasons including believing there is no problem with the existing recommendation (88.5%), vaccination is less cost-effective in the older age group (50.0%), and HPV vaccine should not be administered to all men over age 21 years (46.2%) (Table 1). Reported reasons were similar by physician specialty.

#### 4. Discussion

Over 90% of physicians in primary care practices in the United States that we surveyed supported harmonizing catch-up HPV vaccination recommendations to be the same for men and women. Harmonization of HPV vaccination recommendations across genders was acceptable to most primary care physicians, primarily because this would simplify implementation. Physicians caring for adult patients in their practices (i.e., family physicians and general internists) more commonly reported challenges or confusion from catch-up vaccination recommendations that differed for men and women, compared to pediatricians. This is likely because few pediatricians care for patients over age 21 years, and therefore they have less need to consider patient age when recommending HPV catch-up vaccination.

This analysis is not without limitations. Across all specialties, there was relatively low awareness that catch-up vaccination recommendations differed for men and women, suggesting that implementation of catch-up vaccination recommendations has been limited. Although pediatricians are unlikely to administer catch-up HPV vaccination to patients aged 21–26 years, these physicians were included as they routinely counsel adolescents and their parents on this topic.

In June 2019, after considering relevant evidence including the overall results presented here, ACIP voted to harmonize HPV vaccination recommendations across genders [12,13]. HPV vaccination is still routinely recommended at age 11 or 12 years (and can be given starting at age 9 years); now, catch-up HPV vaccination is recommended for all persons through age 26 years who are not adequately vaccinated, including all females and males [13]. ACIP recommendations are generally covered by health insurance. Recommendations harmonized across genders may facilitate implementation and completion of the HPV vaccination series.

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## Table 1

Reasons primary care physicians are or are not in favor of harmonization across genders of the recommended catch-up HPV vaccination age for everyone through age 26 years, by physician specialty - United States, 2018.

	Total N <sup>*</sup> (%)	Pediatrics n(%)	Family Medicine n(%)	Internal Medicine n(%)
If you are IN FAVOR of the change to harmonize the recommended age, why?	724 (100)	294 (100)	232 (100)	198 (100)
Simplify the vaccination schedule **	(6.79) 007	284 (96.6)	231 (99.6)	194 (98.0)
Easier to implement **	684 (94.5)	270 (91.8)	225 (97.0)	189 (95.5)
Easier to explain to patients	679 (93.8)	270 (91.8)	219 (94.4)	190 (96.0)
Facilitate reaching high-risk populations	619 (85.5)	256 (87.1)	195 (84.1)	168 (84.9)
Reduce burden on health care providers	558 (77.1)	224 (76.2)	187 (80.6)	147 (74.2)
Create equity between genders **	420 (58.0)	199 (67.7)	122 (52.6)	99 (50.0)
If you are NOT IN FAVOR of the change to harmonize the recommended age, why not?	52 (100)	13 (100)	17 (100)	22 (100)
I don't have a problem with the current recommendation	46 (88.5)	12 (92.3)	15 (88.2)	19 (86.4)
Vaccination is less cost-effective in older age groups	26 (50.0)	7 (53.9)	9 (52.9)	10 (45.5)
I don't think HPV vaccine should be administered to all males over age 21 years $^{\ast\ast}$	24 (46.2)	2 (15.4)	12 (70.6)	10 (45.5)
* Missing 35/820 (4.3%) who did not answer whether or not they favored the change, 6/730 reasons why they were not in favor of the change.	(0.8%) who did 1	not state any reasons	why they were in favor of	the change, and 3/55 (5.5%) w

p < 0.05 for difference between specialties.

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