

# The Feminization of HPV: Reversing Gender Biases in US Human Papillomavirus Vaccine Policy

The development of human papillomavirus (HPV) vaccines, which prevent a range of HPV-related cancers, is a truly impressive scientific achievement. In the decade since approval of the quadrivalent vaccine for the prevention of HPV types 6, 11, 16, and 18, the vaccine has been shown to be highly effective.<sup>1</sup> Recently, a nine-valent vaccine was approved, which protects against five additional oncogenic HPV types, providing increased protection.<sup>2</sup> The introduction of this improved vaccine affords the opportunity to undo an unintentional gender bias that has harmed US vaccine efforts.

Because of HPV's causal association with cervical cancer, the original vaccine trials focused on females, and consequently, the vaccine was approved for females aged nine to 26 years. This approach was perfectly reasonable, given what was known at the time. Unfortunately, this approval also fit within an existing cultural narrative that HPV was a woman's problem. We have come to refer to this overidentification of HPV with females, and its subsequent impact on primary prevention efforts, as the "feminization of HPV." The process of feminization occurs when an issue is socially constructed as focused on females,<sup>3</sup> which can impact how

issues are perceived by the public and addressed by the government and other organizations.

The feminization process was, in some sense, the result of an accidental synergy between the known science and our long history of sexism. The decision to license the vaccine only for females was a "perfect storm" of science, politics, economics, and socially constructed beliefs regarding gender roles. In the forthcoming shift from the quadrivalent to the nonavalent vaccine that will undoubtedly involve confusion regarding guidelines, dosage, clinical practice behavior, and health messages, new approaches could correct gender disparities in vaccine delivery. We call for a three-part strategy to address the feminization of HPV, which we hope will foster equity in the prevention of HPV-related diseases.

HPV is not gender-specific. The feminization of HPV is both influenced and complicated by its sexual transmissibility. Prior to the approval of the HPV vaccine, the association of HPV with females has contributed to a reduction in morbidity and mortality, largely because of achievements in Papanicolaou test screening. Yet, the conflation of HPV and female cancers has limited the discussion of the prevention of other HPV-related

cancers, such as anal and oropharyngeal cancers, which do not benefit from routine screenings.

The delay in the scientific evidence connecting males, cancers, and HPV resulted in both the postponement of HPV vaccine recommendations for males and in separate guidelines. Consequently, confusing recommendations by gender and age continue to exist for the HPV vaccine, with a markedly lower uptake among males. In 2014, approximately 60% of females aged 13 to 17 years had received at least one dose of the vaccine, while this was true of only 42% of males.<sup>4</sup> The rates are much lower among the "catch-up" vaccine groups; among women aged 18 to 26 years in 2012 the uptake rate was 34%,<sup>5</sup> while among males the rate in 2011–2012 was only 5.5%.<sup>6</sup> This variability in vaccination rates among age groups and genders illustrates the feminization process that situates HPV as a concern only for females.

The deeper concern is that the feminization of HPV results in males not benefiting from this vaccine. While initial vaccine discussions hypothesized that having adequate HPV vaccination rates among females would ultimately protect males through herd immunity, this thesis has been plagued by low vaccine rates among females in the United States, as well as heteronormative conventions (e.g., ignoring men who have sex with men). Indeed, the initial licensure of the vaccine for females only actually created a gender-biased, cost-effectiveness question that has not been asked for any other vaccine. That is, the question gets framed as, "is it cost-effective to add male vaccination to existing female vaccination?," rather than, "is it cost-effective to vaccinate both males and females compared to not vaccinating anyone?" The cost-effectiveness controversy around male vaccination is, in part, a result of the lag between female and male licensure. Thus, current cost-effectiveness evaluations for males continue to create an unequal approach to vaccine policy.

Additionally, males tend to receive fewer recommendations for the HPV vaccine from health

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care providers.<sup>7</sup> This practice is especially worrisome in the United States, which does not routinely vaccinate via a school-based system, making health care provider recommendations critical.<sup>8,9</sup> The resulting low uptake of the HPV vaccine among males compared with females has resulted in significant HPV vaccine benefit differentials. Consequently, females historically bear the burden for prevention of HPV, while males fail to perceive the risk and obtain the protection they need.

In the decade since the first HPV vaccine, we have watched with dismay the disappointingly slow progress of HPV vaccine rates in the United States among females, and the even more dismal rates among males. To achieve gender balance for the HPV vaccine and reverse the consequences of feminizing HPV, several steps must be initiated. First, the creation of identical age and gender guidelines for the vaccine will remove much of the misperception about who will receive the vaccine and at what age. Addressing this confusion would be an important, albeit difficult step, since recommendations are strongly driven by cost-effectiveness analyses. We would argue that the failure to harmonize gender recommendations and the resulting confusion constitute unrecognized costs from the resulting undervaccination.

Second, the national climate regarding the HPV vaccine and vaccines generally has limited the uptake of this cancer-preventing vaccine. Creating a new national dialogue that dispels myths and supports an environment of vaccine acceptance is necessary. This requires the collaboration of social, political, professional, and scholarly stakeholders to speak in one voice to create clear

and simple messages to promote the vaccine for both males and females.

Third, the most effective approach to neutralizing the feminization of the HPV vaccine is to require middle-school entry vaccination for boys and girls. Similar to other childhood vaccinations, this universal practice will normalize the HPV vaccine, thus creating a national dialogue about the health of our girls and boys. The reality is that if the vaccine is not required, it will not be perceived as necessary. To achieve school-entry requirements, and avoid potential “backlash,” a state-by-state “policy window” must be created, which requires the recognition of HPV and HPV-related cancer prevention as a public health priority. Policymakers must overcome barriers to universal vaccination,<sup>10</sup> such as HPV’s connection to sexuality and the antivaccination movement,<sup>11</sup> by mobilizing HPV vaccine proponents and communicating evidence-informed messages to their constituents and fellow lawmakers. A partnership must be established between policymakers and researchers or providers to ensure this success.

With nearly a decade of strong evidence of safety and efficacy, now is the time to frame the vaccine in a different light, to fashion new dialogues about protecting *all* of our children and young adults equally, to create consistent recommendations for both females and males by both age and by routine or catch-up indications, and to enact new policies that require the vaccine to be part of school entry, with rigorous prohibitions against opt-out by parents, as is true of other vaccines. We have seen the damage of feminizing HPV, which ultimately discriminates against females and males through

different processes and with different, but negative, outcomes. This disparity is important, and unnecessary. Correcting it is imperative. The time to act is now. **AJPH**

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