

## RE: Progress in HPV Vaccine Hesitancy

In the article by Sonawane et al,<sup>1</sup> the important question of parental hesitancy regarding adolescent human papillomavirus (HPV) vaccination is examined. The authors reported an increase in hesitancy over a 6-year period (from 50% to 64%) among US parents asked about it. This apparent increase is due to progressively restricting the denominator in later years. Most importantly, the analytic choice masks a more general truth: HPV vaccine hesitancy actually fell among parents overall.

To make sense of this seeming paradox, let us start by observing that HPV vaccine initiation increased during that time period. The National Immunization Survey (NIS)-Teen found that in 2012, ~62.7% of US adolescents had not received HPV vaccination. By 2018, the percentage of unvaccinated children fell to 31.9%. Next, we can observe that the NIS assessed hesitancy only among parents of unvaccinated children; thus, there were fewer parents to ask about hesitancy in later years. These 2 findings create the illusion of higher hesitancy when one looks at smaller and smaller subsets of parents over time.

An illustration helps clarify the paradox. Let us walk through what this would look like for a cohort of 1000 parents. In the 2012 survey, ~627 parents would have been asked the hesitancy question, and 316 said they were hesitant to vaccinate. Although the authors described this as 50% hesitancy (316 of 627 parents), we assert that this is better understood as 32% hesitancy (316 of 1000 parents). By the 2018 survey, only ~319 of the parents had unvaccinated adolescent children, and 204 said they were hesitant to vaccinate when asked about it. Again, the authors said hesitancy increased to 65% (204 of 319 parents), and we believe it decreased to 20% (204 of 1000 parents). This illustration reveals how important it is to clearly

define the denominator when measuring hesitancy over time.

In contrast to Sonawane et al,<sup>1</sup> we conclude that HPV vaccine hesitancy decreased among US parents overall from 2012 to 2018 as rates of HPV vaccine recommendations and administration rose nationally. Clearly communicating this finding is of vital importance for encouraging pediatricians and other primary care providers to continue to build on the progress they have achieved in improving their communication and establishing HPV vaccination as a norm among US adolescents. Providers' hard work is paying off and should be applauded.

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**CONFLICT OF INTEREST:** Mr Brewer has served as a paid advisor to Merck, as well as the Centers for Disease Control and Prevention, US Food and Drug Administration, and World Health Organization; and Ms Gilkey and Mr Thompson have indicated they have no potential conflicts of interest to disclose.

### REFERENCES

1. Sonawane K, Zhu Y, Lin Y-Y, et al. HPV vaccine recommendations and parental intent. *Pediatrics*. 2021;147(3): e2020026286

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