



Vaccine knowledge, attitudes, and practices among New York State healthcare providers

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Background: Vaccine attitudes of healthcare providers (HCPs) influence patient vaccine acceptance. We sought to characterize vaccine knowledge, attitudes, and practices (KAP) among HCPs in NYS. **Methods:** An electronic survey was developed to assess vaccine KAP among HCPs. The questionnaires were sent to members of various national medical organizations via local chapter administrators. **Results:** 864 surveys were returned from 672 (78%) physicians and 192 (22%) mid-level practitioners (MLPs). 624/724 (86%) of HCPs report always recommending routine vaccines to eligible patients, yet only 76% recommend influenza vaccine (IV) and 77% strongly recommend HPV vaccine at 11-12 years. MLPs had a higher mean agreement level that recommending vaccines (4.6 vs 4.2 p<0.01) or promoting HPV vaccine (4.2 vs 3.9 p<0.05) is within their scope of practice. Physicians had a higher mean agreement level that: vaccine benefits outweigh risks (4.9 vs 4.6 p<0.01), HPV vaccine prevents cancer (4.7 vs 4.5 p<0.01), and COVID-19 vaccine is safe (4.8 vs 4.5, p<0.01) and effective (4.8 vs 4.7, p<0.01). 82% (680/825) of HCPs knew that vaccines should not be deferred for mild illness. 14/836 (2%) believed that HPV vaccine could increase sexual activity, while 273/705 (39%) knew that the most common HPV associated malignancy is oropharyngeal cancer. HCPs who correctly answered >= 5/7 questions (462/507 91%) were more likely to recommend all vaccines to eligible patients than HCPs with lower scores (22/40 50% P<0.05). Routine IV recommendation was more likely among HCPs who: strongly disagree that influenza is not serious enough for vaccination (292/397 (74%) vs 137/249 (55%) p<0.01), strongly agree that it prevents severe disease (267/352 (76%) vs 162/294 (55%) p<0.01), and receive annual IV (423/629 (67%) vs 6/17 (35%) p<0.01). HPV vaccine recommendation at 11-12 years was more likely among HCPs who strongly agreed that the vaccine prevents cancer (273/326 (84%) vs 48/86 (56%) p<0.01) and those who stated that vaccination does not increase risk of unprotected sex (316/392 (79%) vs 3/12 (25%) p<0.01). **Conclusion:** Vaccine recommendation practices are influenced by HCP vaccine misperceptions and hesitancy. Interventions to reduce misperceptions and improve vaccine confidence are needed.

Background

- Vaccination rates are on the decline, leaving communities vulnerable to vaccine preventable disease outbreaks
- Vaccine hesitancy among providers may be contributing to declining vaccination rates

Methods

- Designed anonymous, electronic, self-administered survey to assess provider vaccine knowledge, attitudes, and practices
- Survey distributed to HCPs by local chapter administrator of national medical organizations – American Academy of Pediatrics, NYS Academy of Family Physicians, Medical Society of the State of New York, the Nurse Practitioner Association
- Statistical analysis conducted to assess correlations in data

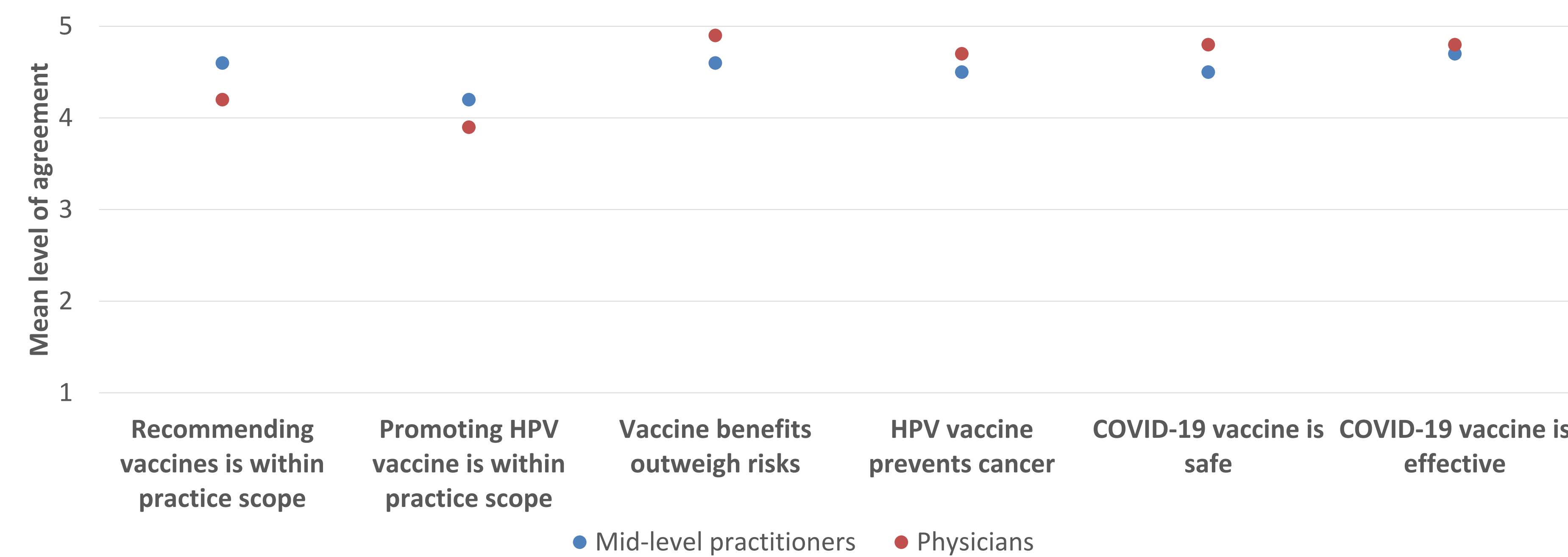
Results

Demographics of NYS HCPs who completed the survey

	Total respondents	Physicians n (%)	Mid-level providers n (%)
Total respondents	864	672 (78)	192 (22)
Number providing healthcare field	836	658	178
Primary care	500 (58)	388 (59)	112 (63)
Subspecialty	336 (40)	270 (41)	66 (37)

- 86% of HCPs report always recommending routine vaccines BUT
 - 23% do not strongly recommend HPV vaccine at 11-12 year visits
 - 24% do not always recommend IV

Vaccine beliefs by provider role

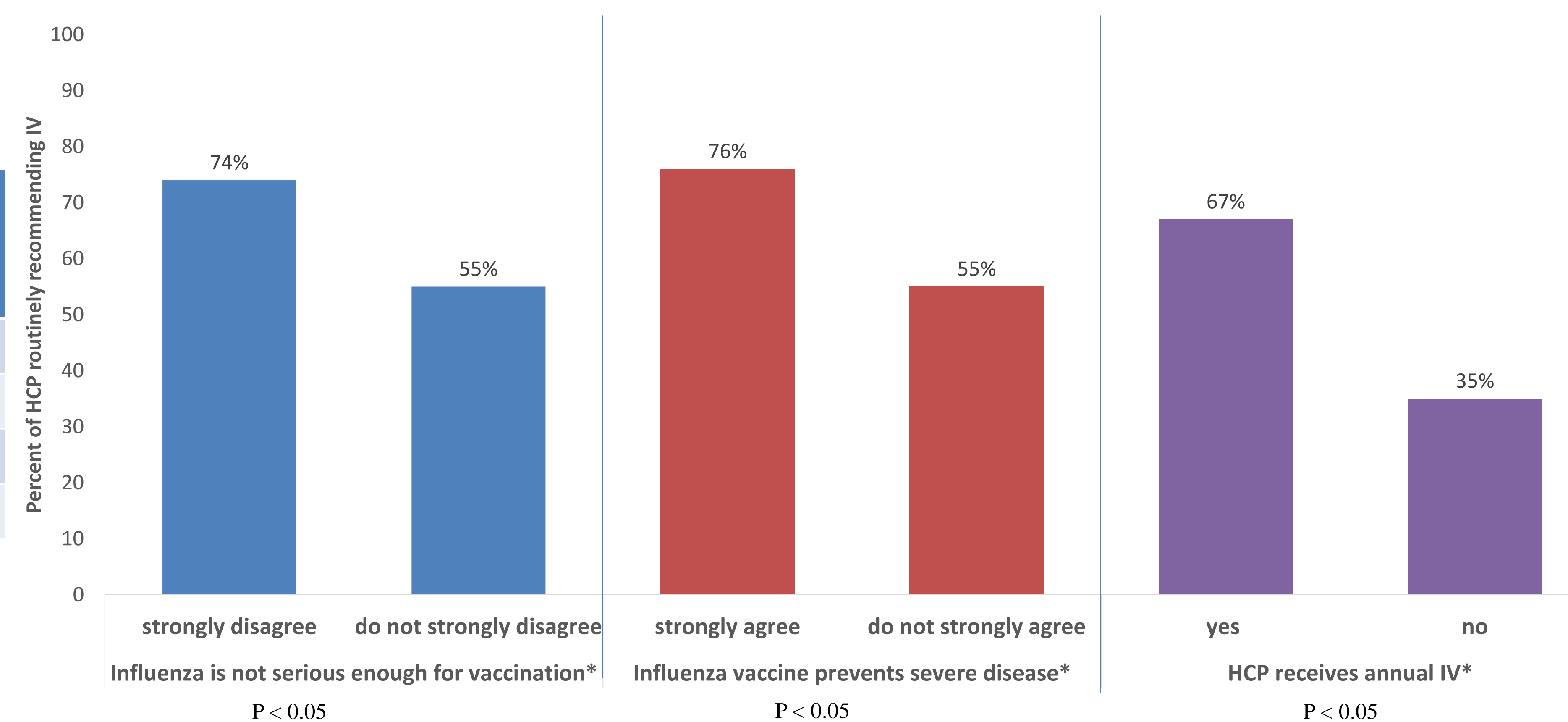


Vaccine knowledge among NYS HCPs

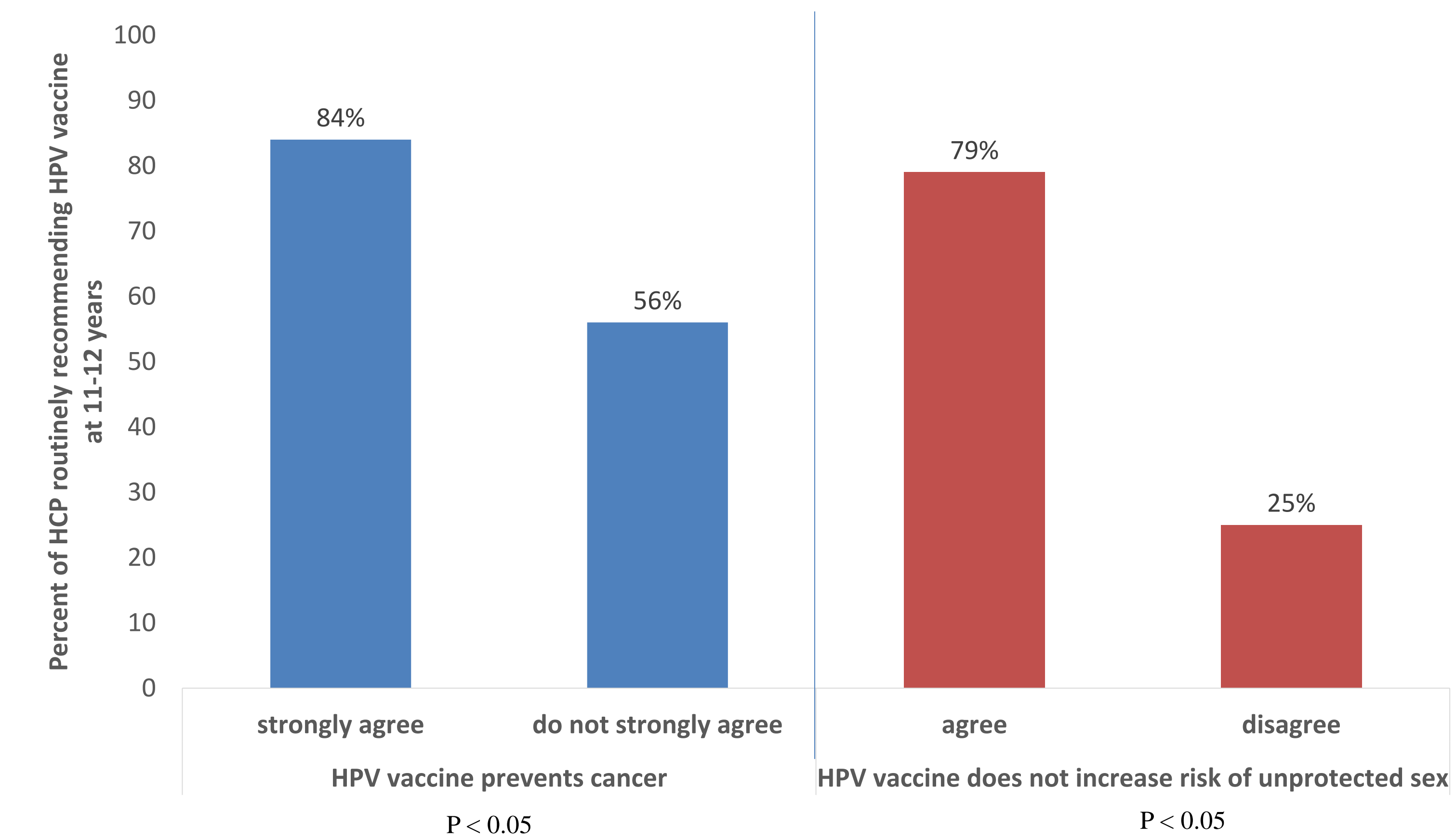
	Correct answers
Vaccines should not be deferred for mild illness	680/825 (82%)
The most common HPV-associated cancer is oropharyngeal cancer	273/705 (39%)

- 2% of providers agreed that adolescent HPV vaccination increases risk of unprotected sex
- HCPs who correctly answered at least 5 of the 7 vaccine knowledge questions were more likely to always recommend the routine vaccines (91% vs 50%, <0.05)

Factors associated with routine recommendations of IV



Factors associated with routine recommendation of HPV vaccine at 11-12 years



Conclusion

- Vaccine hesitancy is present among NYS healthcare providers
- HCP vaccine knowledge and attitudes influence their vaccine recommendation behaviors
- Multifaceted programs targeting gaps in knowledge and negative vaccine attitudes among HCPs across the state are needed to improve provider vaccine confidence and ultimately increase community-wide vaccine uptake

Reference

Lin, C., Mullen, J., Smith, D., Kotarba, M., Kaplan, S. J., & Tu, P. (2021). Healthcare providers' vaccine perceptions, hesitancy, and recommendation to patients: A systematic review. *Vaccines*, 9(7), 713. <https://doi.org/10.3390/vaccines9070713>

Funding provided by the Merck Investigator Studies Program