

# References for Further Research: A Few Key Human Papillomavirus Vaccine (HPV) Publications

## Impact

### HPV vaccination and the risk of invasive cervical cancer

In this cohort study based in Sweden, the authors found that girls who received the HPV vaccine before age 17 had an 88% lower risk of developing cervical cancer compared to those who never received the vaccine.

Lei J, Ploner A, Elfström KM, et al. HPV vaccination and the risk of invasive cervical cancer. *N Engl J Med*. 2020;383(14):1340-1348. doi:10.1056/nejmoa1917338

### Population-level impact and herd effects following the introduction of human papillomavirus vaccination programmes: Updated systematic review and meta-analysis

This study examined the population impact of HPV vaccination in high-income countries. The authors found an 83% decrease in the prevalence of high-risk HPV types 16 and 18 among girls ages 13 to 19 years, as well as a 67% decrease in anogenital warts and a 51% decrease in cervical intraepithelial neoplasia grade 2+ (CIN2+) among girls ages 15 to 19 years following the introduction of HPV programs. These decreases and evidence of herd effects were larger in countries with higher HPV vaccination coverage compared to countries with lower coverage.

Drolet M, Bénard É, Pérez N, Brisson M. HPV Vaccination Impact Study Group. Population-level impact and herd effects following the introduction of human papillomavirus vaccination programmes: Updated systematic review and meta-analysis. *Lancet*. 2019;394(10197):497-509. doi:10.1016/S0140-6736(19)30298-3

## Coverage

### National vaccination coverage among adolescents aged 13–17 years — National Immunization Survey-Teen, United States, 2021.

Among adolescents ages 13 to 17 years in 2021, HPV vaccination coverage with at least one dose of HPV vaccine was 76.9%, and up-to-date coverage (2 or 3 doses, depending on age) was 60%. While coverage continues to increase over time, disparities remain. Coverage was about nine percentage points lower among adolescents living in non-metropolitan areas compared to adolescents living in metropolitan areas.

Pingali C, Yankey D, Elam-Evans LD, et al. National vaccination coverage among adolescents aged 13-17 years—National Immunization Survey-Teen, United States, 2021. *MMWR Morb Mortal Wkly Rep*. 2022;71(35):1101-1108. doi:10.15585/mmwr.mm7135a1

## Safety

### **Near real-time surveillance to assess the safety of the 9-valent human papillomavirus vaccine**

The Centers for Disease Control (CDC) Vaccine Safety Datalink (VSD) was used to evaluate the safety of the HPV vaccine. After 838,991 doses, VSD did not identify any new safety concerns, confirming the safety of this vaccine.

Donahue JG, Kieke BA, Lewis EM, et al. Near real-time surveillance to assess the safety of the 9-valent human papillomavirus vaccine. *Pediatrics*. 2019;144(6):e20191808. doi:10.1542/peds.2019-1808

## Importance of the Provider Recommendation

### **Human papillomavirus vaccination: Narrative review of studies on how providers' vaccine communication affects attitudes and uptake**

The authors reviewed the literature on provider communication techniques to increase HPV vaccine uptake. They found that strong, brief and “presumptive” (introducing the vaccine as though the provider expects the parents or caregivers will agree to it) recommendations can improve HPV vaccine uptake. The authors also discuss motivational interviewing as a promising strategy to address HPV vaccine hesitancy.

Dempsey AF, O’Leary ST. Human papillomavirus vaccination: Narrative review of studies on how providers’ vaccine communication affects attitudes and uptake. *Acad Pediatr*. 2018;18(2S):S23-S27. doi:10.1016/j.acap.2017.09.001

### **Provider communication and HPV vaccination: The impact of recommendation quality**

The authors surveyed parents of adolescents ages 11 to 17. They found almost half of parents did not receive a recommendation for the HPV vaccine from their child’s health care provider and only about one-third reported receiving a high-quality recommendation. The children of parents who reported a high-quality provider recommendation had nine times higher odds of receiving the HPV vaccine.

Gilkey MB, Calo WA, Moss JL, Shah PD, Marciniak MW, Brewer NT. Provider communication and HPV vaccination: The impact of recommendation quality. *Vaccine*. 2016;34(9):1187-1192. doi:10.1016/j.vaccine.2016.01.023

### **Why the American Academy of Pediatrics recommends initiating HPV vaccine at age 9**

In this commentary, Dr. Sean O’Leary, chair of the Committee on Infectious Diseases for the American Academy of Pediatrics (AAP), describes why the AAP recommends initiating the HPV vaccination series between ages 9 and 12. The AAP’s primary reason for earlier initiation is to increase HPV vaccination uptake. Starting the series at age 9 or 10 also allows providers more flexibility, can be preferable for families and adolescents who do not want to receive three or more vaccines in a single visit at age 11 or 12, and can help focus the discussion on cancer prevention instead of sexual activity.

O’Leary ST. Why the American Academy of Pediatrics recommends initiating HPV vaccine at age 9. *Hum Vaccin Immunother*. 2022;18(6):2146434. doi:10.1080/21645515.2022.2146434

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