

June 20, 2025

Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS)

Submitted to: https://www.regulations.gov/commenton/CDC-2025-0024-0001

RE: Docket No. CDC-2025-0024, June 25-27, 2025 ACIP Meeting

To Whom It May Concern:

On behalf of the more than 59,000 laboratory researchers, physician-scientists, other health professionals, and patient advocates who constitute the membership of the American Association for Cancer Research's (AACR), we thank the U.S. Centers for Disease Control and Prevention (CDC) for the opportunity to comment ahead of the June 25th-27th meetings of the Advisory Committee on Immunization Practices (ACIP). We strongly urge ACIP to reaffirm its HPV vaccine recommendations and promote public health guidance that encourages HPV vaccination for cancer prevention.

Infection by certain pathogens (bacteria, viruses, or parasites) can increase a person's risk of developing various cancers. Human papillomavirus is a group of more than 200 related viruses of which 12 high-risk HPV types are definitively known to be associated with cancers: HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59, with HPV types 16 and 18 being responsible for most HPV-related cancers (1). In the United States, 95% of cervical cancer cases, 90% of anal cancer cases, 70% of vaginal and vulvar cancer cases, 60% of oropharyngeal (throat) cancer cases, and 60% of penile cancer cases are associated with high-risk HPV infection (2). HPV infection has been found to be the largest single pathogen contributor to cancer cases and deaths in the United States. Nearly all cervical cancer deaths among women aged 30 years and older and over 90% of anal cancer deaths among men can be attributed to HPV infection (3). Furthermore, these HPV-attributable cancer deaths are associated with a substantial economic burden in the U.S., with an estimated \$4.2 billion in economic productivity lost in 2017 (4). There are currently no well-studied treatments for HPV infection, therefore the most effective methods for reducing HPVrelated cancer incidence and mortality are targeted at preventing HPV infection. Clearly, HPV-attributable cancers remain a significant public health problem that can be addressed with appropriate public health measures.

To address HPV disease burden, several HPV vaccines have been developed. The FDA approved the first-generation HPV vaccine Gardasil®, which prevented infection by four



high-risk types of HPV: 6, 11, 16, and 18, in 2006. The updated vaccine, Gardasil®9, which targets an additional 5 types (31, 33, 45, 52, and 58) was approved by the FDA in 2014 and has been the only available HPV vaccine in the U.S. since 2016 (5). Since the introduction of HPV vaccines, a large body of scientific evidence has been accumulated that demonstrates their efficacy, safety, and cost-effectiveness (6). HPV vaccines have been in use since 2006 and went through extensive safety testing before becoming available. The currently licensed Gardasil®9 built upon the favorable safety and efficacy profile of the original vaccine and was studied in clinical trials with more than 15,000 participants and continues to be monitored (7). Crucially, numerous studies have found that HPV vaccination has led reductions in incidence of and deaths due to HPV-attributable cervical, oropharyngeal, and anal cancers (8–12). As the HPV vaccine has been recommended and incorporated into public health programs, it has continued to show excellent safety and effectiveness outcomes, been endorsed by many health authorities, and hundreds of millions of doses of the HPV vaccine have been given worldwide (13,14). These real-world results demonstrate that HPV vaccination is not only safe but critical to cancer prevention and promoting public health.

AACR Strongly Supports Continued Recommendation of HPV Vaccination

The CDC last updated its HPV vaccine recommendations in 2019 to include routine HPV vaccination beginning at age 11 or 12 (and as early as 9) with catch-up vaccination through age 26 for all individuals (both women and men) (15). The current guidelines are a two-dose series at ages 9 through 14 and a three-dose series for ages 15-26 or for immunocompromised persons. Importantly, given that the HPV vaccine can prevent but not treat HPV infections, vaccination is recommended primarily for younger individuals before potential exposure to HPV. The HPV vaccine is most effective when given at younger ages; vaccination of young adults will not prevent as many cancers as vaccination of children and teens (16). However, data from the National Health Interview Survey indicated only 38.6% of children ages 9–17 years had received one or more HPV vaccine doses in 2022 (17). And recent data from the National Immunization Survey-Teen found that only about 61% of adolescents ages 13 to 17 (64% for girls and 59% for boys) have completed the HPV vaccination series (18). One of the major reasons for HPV vaccine hesitancy has been general safety concerns; however, educating the public on the safety profile of the HPV vaccine and its role in cancer prevention has helped lead to guideline-consistent HPV vaccination (19,20). Further public health efforts are needed to reach the Healthy People 2030 goal of 80% of adolescents having received the recommended doses of the HPV vaccine (21). We encourage ACIP to continue research and evaluation of single-dose regimens as potential approaches for increased HPV vaccine uptake (22–24).



We urge ACIP to reaffirm the CDC's HPV vaccine recommendations. Specifically, we ask ACIP to:

- Continue to issue strong, unambiguous recommendations for routine HPV vaccination beginning at age 11 or 12 (and as early as 9), with catch-up vaccination through age 26 for all individuals
- Reaffirm the CDC's findings on HPV vaccine safety (25)
- Promote understanding of the effectiveness of HPV vaccination for reducing the risk of multiple cancers

In conclusion, the AACR unequivocally supports continued recommendation of the HPV vaccine. The HPV vaccine has shown both initial efficacy and durable long-term effectiveness for preventing HPV-attributable cancer incidence and mortality and has translated to tangible public health and economic benefits (26,27). If ACIP were to narrow or remove the CDC HPV vaccine recommendations, this would have profound negative effects on HPV vaccination rates and would lead to increased cancer incidence and death. If AACR can provide any additional information or assistance to CDC, please do not hesitate to contact Jon Retzlaff, Director of Science Policy and Legislative Affairs, at jon.retzlaff@aacr.org. Thank you again for the opportunity to provide comments to ACIP.

Sincerely,

Margaret Foti, PhD, MD (h.c.)

Chief Executive Officer
American Association for Cancer
Research

Gilbert S. Omenn, MD, PhD

Chair, Health Policy Subcommittee American Association for Cancer Research

Gilbert S. Chenn

Harold T. Shapiro Distinguished University
Professor of Medicine and Member, Rogel
Cancer Center

University of Michigan, Ann Arbor, MI, 48109



References

- National Cancer Institute. HPV and Cancer [Internet]. 2025 [cited 2025 Jun 16].
 Available from: https://www.cancer.gov/about-cancer/causes-prevention/risk/infectious-agents/hpv-and-cancer
- 2. Roman BR, Aragones A. Epidemiology and incidence of HPV-related cancers of the head and neck. J Surg Oncol. 2021.
- 3. Islami F, Marlow EC, Thomson B, McCullough ML, Rumgay H, Gapstur SM, et al. Proportion and number of cancer cases and deaths attributable to potentially modifiable risk factors in the United States, 2019. CA Cancer J Clin. 2024;74:405–32.
- 4. Priyadarshini M, Prabhu VS, Snedecor SJ, Corman S, Kuter BJ, Nwankwo C, et al. Economic Value of Lost Productivity Attributable to Human Papillomavirus Cancer Mortality in the United States. Front Public Health. 2021;8.
- 5. Markowitz LE, Gee J, Chesson H, Stokley S. Ten Years of Human Papillomavirus Vaccination in the United States. Acad Pediatr. 2018;18:S3–10.
- 6. Markowitz LE, Gee J, Chesson H, Stokley S. Ten Years of Human Papillomavirus Vaccination in the United States. Acad Pediatr. 2018;18:S3–10.
- 7. Zhang Z, Zhang J, Xia N, Zhao Q. Expanded strain coverage for a highly successful public health tool: Prophylactic 9-valent human papillomavirus vaccine. Hum Vaccin Immunother. 2017;13:2280–91.
- 8. Berenson AB, Guo F, Chang M. Association of Human Papillomavirus Vaccination With the Incidence of Squamous Cell Carcinomas of the Anus in the US. JAMA Oncol. 2022;8:639.
- 9. Roman BR, Aragones A. Epidemiology and incidence of HPV-related cancers of the head and neck. J Surg Oncol. 2021;124:920–2.
- Dorali P, Damgacioglu H, Clarke MA, Wentzensen N, Orr BC, Sonawane K, et al. Cervical Cancer Mortality Among US Women Younger Than 25 Years, 1992-2021.
 JAMA. 2025;333:165.
- DeKloe J, Urdang ZD, Martinez Outschoorn UE, Curry JM. Effects of HPV vaccination on the development of HPV-related cancers: A retrospective analysis of a United States-based cohort. Journal of Clinical Oncology. 2024;42:10507–10507.



- 12. Guo F, Cofie LE, Berenson AB. Cervical Cancer Incidence in Young U.S. Females After Human Papillomavirus Vaccine Introduction. Am J Prev Med. 2018;55:197–204.
- 13. Gidengil C, Goetz MB, Newberry S, Maglione M, Hall O, Larkin J, et al. Safety of vaccines used for routine immunization in the United States: An updated systematic review and meta-analysis. Vaccine. 2021;39:3696–716.
- 14. IPVS Policy statement on safety of HPV vaccines. Papillomavirus Research. 2016;2:9–10.
- 15. Meites E, Szilagyi PG, Chesson HW, Unger ER, Romero JR, Markowitz LE. Human Papillomavirus Vaccination for Adults: Updated Recommendations of the Advisory Committee on Immunization Practices. MMWR Morb Mortal Wkly Rep. 2019;68:698–702.
- 16. Ellingson MK, Sheikha H, Nyhan K, Oliveira CR, Niccolai LM. Human papillomavirus vaccine effectiveness by age at vaccination: A systematic review. Hum Vaccin Immunother. 2023;19.
- 17. Villarroel M, Galinksy A, Lu P-J, Pingali C, Valenzuela C. Human Papillomavirus Vaccination Coverage in Children Ages 9–17 Years: United States, 2022. Atlanta, GA; 2024 Feb.
- 18. Pingali C, Yankey D, Chen M, Elam-Evans LD, Markowitz LE, DeSisto CL, et al. National Vaccination Coverage Among Adolescents Aged 13–17 Years National Immunization Survey-Teen, United States, 2023. MMWR Morb Mortal Wkly Rep. 2024;73:708–14.
- 19. Sonawane K, Lin Y-Y, Damgacioglu H, Zhu Y, Fernandez ME, Montealegre JR, et al. Trends in Human Papillomavirus Vaccine Safety Concerns and Adverse Event Reporting in the United States. JAMA Netw Open. 2021;4:e2124502.
- 20. Gilkey MB, Zhou M, McRee A-L, Kornides ML, Bridges JFP. Parents' Views on the Best and Worst Reasons for Guideline-Consistent HPV Vaccination. Cancer Epidemiology, Biomarkers & Prevention. 2018;27:762–7.
- 21. Healthy People 2030 [Internet]. [cited 2025 Jun 17]. Available from: https://odphp.health.gov/healthypeople/objectives-and-data/browse-objectives/vaccination/increase-proportion-adolescents-who-get-recommended-doses-hpv-vaccine-iid-08



- 22. Markowitz LE, Drolet M, Lewis RM, Lemieux-Mellouki P, Pérez N, Jit M, et al. Human papillomavirus vaccine effectiveness by number of doses: Updated systematic review of data from national immunization programs. Vaccine. 2022;40:5413–32.
- 23. Mercuri M, Hackett K, Barnabas R V, Emerson CI. Evaluation of a single-dose HPV vaccine strategy for promoting vaccine, health, and gender equity. Lancet Infect Dis. 2024;24:e654–8.
- 24. Schuind AE, Balaji KA, Du A, Yuan Y, Dull P. Human papillomavirus prophylactic vaccines: update on new vaccine development and implications for single-dose policy. JNCI Monographs. 2024;2024:410–6.
- 25. Human Papillomavirus (HPV) Vaccine Safety [Internet]. [cited 2025 Jun 17]. Available from: https://www.cdc.gov/vaccine-safety/vaccines/hpv.html
- 26. Goldstone SE. Human papillomavirus (HPV) vaccines in adults: Learnings from long-term follow-up of quadrivalent HPV vaccine clinical trials. Hum Vaccin Immunother. 2023;19.
- 27. Brisson M, Laprise J-F, Chesson HW, Drolet M, Malagón T, Boily M-C, et al. Health and Economic Impact of Switching from a 4-Valent to a 9-Valent HPV Vaccination Program in the United States. J Natl Cancer Inst. 2016;108:djv282.