

Study compares immune response of 2 vs. 3 doses of HPV vaccine

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Electron micrograph of a negatively stained human papilloma virus (HPV) which occurs in human warts. Credit: public domain

In a study published online by *JAMA*, Ole-Erik Iversen, M.D., Ph.D., of the University of Bergen, Norway, and colleagues examined whether human papillomavirus (HPV) type-specific antibody responses would be noninferior (not worse than) among girls and boys ages 9 to 14 years

after receiving 2 doses of the 9-valent HPV vaccine compared with adolescent girls and young women ages 16 to 26 years who received the standard 3 doses.

For this study, conducted at 52 ambulatory care sites in 15 countries, five groups were enrolled:(1) girls ages 9 to 14 years to receive 2 doses 6 months apart (n = 301); (2) boys ages 9 to 14 years to receive 2 doses 6 months apart (n = 301); (3) girls and boys ages 9 to 14 years to receive 2 doses 12 months apart (n = 301); (4) girls ages 9 to 14 years to receive 3 doses over 6 months (n = 301); and (5) a control group of [adolescent girls](#) and [young women](#) ages 16 to 26 years to receive 3 doses over 6 months (n = 314).

Of the 1,518 participants (753 girls [average age, 11.4 years]; 451 boys [average age, 11.5 years]; and 314 adolescent girls and young women [average age, 21 years]), 1,474 completed the study and data from 1,377 were analyzed. At 4 weeks after the last dose, the researchers found that HPV [antibody responses](#) in girls and boys given 2 doses were noninferior to HPV antibody responses in adolescent [girls](#) and young women given 3 doses.

"Diseases related to the human papillomavirus impose a substantial health care burden on both the developing and developed world," the authors write. "In many countries, HPV vaccination rates remain suboptimal. Using an effective 2-dose regimen entailing fewer visits could improve adherence to HPV vaccination programs. Co-administration of the 9-valent HPV [vaccine](#) with diphtheria, tetanus, pertussis, polio, and meningococcal vaccines could also be completed at the same visit, which has been demonstrated in clinical studies. Based on health economics modeling, use of a 2-dose vaccination schedule could potentially reduce the total costs of HPV vaccination."

"Further research is needed to assess persistence of antibody responses

and effects on clinical outcomes."

"In October 2016, the CDC recommended a 2-dose schedule for adolescents starting the HPV vaccination series before the age of 15 years. This important policy change for the United States is supported by previously published data as well as results from the clinical trial by Iversen and colleagues in this issue of *JAMA*. This clinical trial, which included 1,518 participants, was the basis for the recent approval from the Food and Drug Administration of a 2-dose series of the 9-valent HPV vaccine for adolescents," writes Lauri E. Markowitz, M.D., of the U.S. Centers for Disease Control and Prevention, Atlanta, and colleagues in an accompanying editorial. "With data from the trial reported in *JAMA*, evidence now supports a 2-dose schedule in adolescents (aged 9 to 14 years) for all 3 licensed HPV vaccines."

"During the first decade of the HPV vaccination program, knowledge has increased about these highly effective HPV vaccines. Population-level effects of vaccination programs on infection and disease outcomes have exceeded expectations in many countries, and extensive safety evaluations have not identified concerns. In the second decade, reduced dose schedules might help achieve higher HPV vaccination coverage, advance HPV vaccine program introductions in more countries, and further reduce the burden of HPV-associated cancers and disease worldwide."

More information: *JAMA*, [DOI: 10.1001/jama.2016.17615](https://doi.org/10.1001/jama.2016.17615)

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