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## Position statement

## Human Papillomavirus Vaccine: An Updated Position Statement of the Society for Adolescent Health and Medicine

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Human papillomavirus (HPV) is the most common sexually transmitted infection worldwide, causing almost all cases of genital warts and cervical cancer.

### Recommendation for Females

In June 2006, the Food and Drug Administration (FDA) approved a three-dose quadrivalent HPV vaccine for use in females, and in October 2009, the FDA approved a three-dose bivalent HPV vaccine for females. The quadrivalent vaccine is indicated for the prevention of disease caused by HPV types 6, 11, 16, and 18, including cervical, vulvar, and vaginal cancers and their precursors, as well as genital warts. The bivalent vaccine is indicated for prevention of disease caused by HPV types 16 and 18, including cervical cancer and its precursors. Both vaccines are prophylactic and will be most effective when administered before HPV exposure.

On May 28, 2010, the Centers for Disease Control and Prevention published updated HPV vaccine recommendations from the Advisory Committee on Immunization Practices' (ACIP) October 2009 meeting. A three-dose HPV vaccine is recommended routinely to all females aged 11–12 years as well as females aged 13–26 years who were not previously vaccinated. Females as young as 9 years of age may be vaccinated. The ACIP recommends vaccination with either the bivalent HPV vaccine or the quadrivalent HPV vaccine for prevention of cervical cancers and precancers in females aged 9–26 years. The ACIP notes that both vaccines might provide protection against other HPV-related cancers in addition to cervical cancer, although there are currently data sufficient to recommend only the quadrivalent vaccine for protection against vulvar and vaginal cancers and precancers. The quadrivalent vaccine is also recommended for prevention of genital warts. Vaccination is recommended regardless of a previous history of HPV infection or abnormal Pap test result. Although use is not recommended in pregnancy, a pregnancy test is not necessary before administration of the vaccine. The Society for Adolescent Health and Medicine (SAHM) fully endorses the ACIP's universal recommendations for a three-

dose HPV vaccine among females. If both the quadrivalent and bivalent vaccines are available, clinicians should discuss the options regarding the prevention of precancerous lesions and genital warts with their patients when deciding which vaccine to administer. Despite minor differences in manufacturer-recommended dosing schedules, the ACIP recommends harmonization of the dosing schedule to include doses at 0, 1–2, and 6 months. The minimum interval between the first and second doses of either vaccine is 4 weeks. The minimum interval between the second and third dose of either vaccine is 12 weeks. The minimum interval between the first and third dose is 24 weeks. When starting the series with one product, that product should be used to complete the series when possible. If initial vaccine product is unknown or unavailable, available HPV vaccine may be administered; however, the bivalent product will not protect against infection with HPV types 6 and 11.

The SAHM also supports the ACIP recommendation for continued Pap testing after vaccination. Routine Pap screening to detect cervical dysplasia is important after vaccination for the following reasons: despite evidence that both the bivalent and quadrivalent vaccines provide cross-protection against several nonvaccine oncogenic HPV genotypes, an estimated 30% of cervical carcinomas are caused by HPV types not contained in either vaccine; vaccine recipients may not complete the full series before HPV exposure; vaccine recipients may have been infected with one or more vaccine genotypes before immunization; and vaccine failures may occur with any vaccine depending on host factors (such as immunocompromise).

### Recommendation for Males

On October 16, 2009, the FDA approved use of the quadrivalent vaccine for males aged 9–26 years for the prevention of genital warts caused by HPV types 6 and 11. At the October 2009 meeting, the ACIP recommended use of the quadrivalent HPV vaccine for males on a permissive basis, allowing but not universally recommending vaccination of males. The recommendation, published in the *Morbidity and Mortality Weekly Report* in May (2010), states that the quadrivalent HPV vaccine “may be given to males aged 9 through 26 years to reduce their likelihood of acquiring genital warts.” The ACIP also voted to have vaccine for males covered under the Vaccines for Children Program, provid-

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ing the vaccine free of cost through the age of 18 years for those who are uninsured, have Medicaid, or are underinsured and attend a federally qualified health center or a rural health center. The SAHM recommends that clinicians consider the potential benefit of routine vaccination for all age-appropriate patients, regardless of gender, and further recommends routine use of HPV vaccination in males. There is a strong association between HPV infection and penile, anal, and oropharyngeal cancers among males, and studies have demonstrated that the quadrivalent HPV vaccine is effective in preventing HPV infection and HPV-related precancers in males. Males may therefore benefit directly from HPV vaccination; in addition, their partners may derive indirect benefits from vaccination because of a decreased risk of exposure to HPV. The SAHM acknowledges that a vaccination program including males is not as cost-effective as a program focusing on the vaccination of females as a means of preventing HPV-related cancer. However, various cost-effectiveness analyses have shown that vaccination of males is more cost-effective when the rate of immunization among females is relatively low. At this time, coverage rates among females are sufficiently low (less than 25% for the complete vaccine series), so that vaccination of males may be cost-effective.

### Recommendations for Education and Funding

In association with HPV vaccination, health providers must continue to educate male and female adolescent patients and their parents, as developmentally appropriate, about the need for continued sexually transmitted infection prevention and surveillance, including the importance of consistent condom use among those who are sexually active. The SAHM strongly supports the ACIP decision that both male and female vaccination be covered by the Vaccines for Children Program, thus ensuring that cost need not be a barrier to HPV vaccination for uninsured and underinsured adolescents. The SAHM strongly encourages third party payers to cover the cost of HPV vaccination for both genders to avoid potential gender or socioeconomic disparities in immunization coverage.

For guidelines regarding implementation of adolescent immunizations please see “Adolescent Immunizations: A Position Paper of the Society for Adolescent Medicine” ([http://www.adolescenthealth.org/positionpaper\\_Immunization.pdf](http://www.adolescenthealth.org/positionpaper_Immunization.pdf)).

### Author Disclosures

Lawrence Friedman, M.D., is a member of the Merck, Inc. Speakers Bureau and has received honoraria from SciMed; David Bell, M.D., M.P.H., is a current member of the Merck, Inc. Advisory Board and a past member of Merck, Inc. Speakers Bureau; Jessica Kahn, M.D., M.P.H., is the recipient of Merck, Inc. funding to provide immunogenicity testing and HPV vaccine as part of an NIH-funded clinical trial; Susan Rosenthal, Ph.D., is a paid research consultant to Merck, Inc. as well as a funded Merck, Inc. investigator and a member of the Merck, Inc. Advisory Board; and Gregory Zimet, Ph.D., is a paid research consultant to Merck, Inc. as well as a funded Merck, Inc. investigator.

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