

## Introduction and Methods

The Centers for Disease Control and Prevention (CDC) recommends the Human Papillomavirus (HPV) vaccine routinely for all adolescents beginning at ages 11 to 12<sup>1</sup>. For those who start the vaccine series before their 15<sup>th</sup> birthday, two doses of the HPV vaccine are recommended. Adolescents and young adults (up to age 26) who have not started or completed the HPV vaccine series by their 15<sup>th</sup> birthday need three doses<sup>1</sup>. This vaccine protects against both genital warts and cancers caused by HPV<sup>2</sup>. Studies have shown that the prevalence of HPV infection has decreased since the vaccine was introduced in 2006<sup>3</sup>.

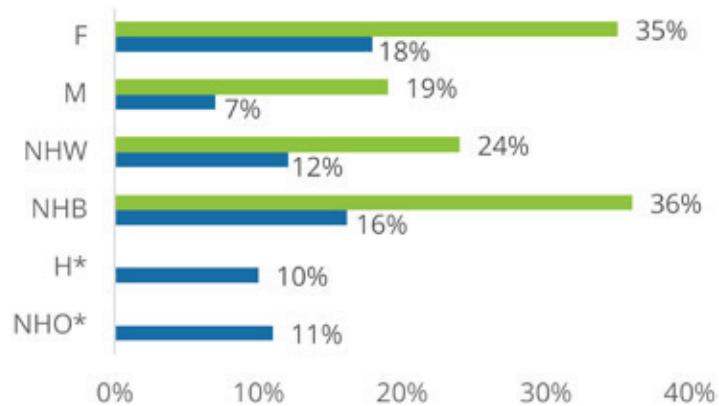
Although the HPV vaccine has been available for over ten years, immunization rates have not increased at the rate of other new vaccines, e.g., Tdap (Tetanus-Diphtheria-Pertussis), both in South Carolina (SC) and the US<sup>4</sup>. Using the Children's Health Assessment Survey (CHAS) and the Behavioral Risk Factor Surveillance System (BRFSS), demographic characteristics among adolescents and adults who received the HPV vaccine were examined in SC.

This report provides the most recent state estimates of HPV vaccination among adolescents (11–17 years) from CHAS (2012, 2014 and 2016) and among adults (18–35 years) from BRFSS (2015–2016) surveys in SC. The following characteristics among adults were included: race/ethnicity, sex, income, health insurance status, and Department of Health and Environmental Control (DHEC) region. The following characteristics among adolescents were included: age, race/ethnicity, sex, health insurance status, and DHEC region. Among adolescents, the sources from which parents/guardians heard about the HPV vaccine were also investigated. The data were weighted to represent all adolescents and adults in SC eligible for the vaccine.

SAS 9.4 software<sup>5</sup> was utilized to obtain weighted prevalence estimates and 95% confidence intervals via survey analysis procedures.

## Results

We found that 27% ( $\pm 4\%$ ) of adolescents (11–17 years) and 13% ( $\pm 1\%$ ) of adults (18–35 years) have received at least one dose of the HPV vaccine. Significantly more non-Hispanic blacks and females received the HPV vaccine compared to non-Hispanic whites and males among both adolescents and adults (Figure 1). Adults of lower (<\$15K) annual household income had significantly higher HPV vaccination rates than those of higher (\$50K+) income (17% vs. 10%). There were no significant differences by health insurance status, public health region, or adolescent's age (data not shown).

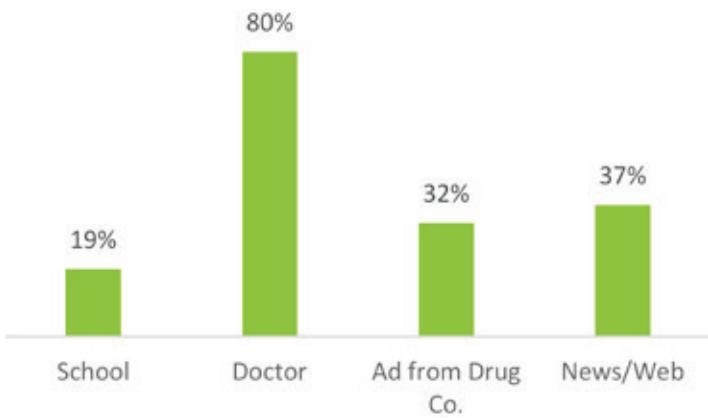


**Figure 1.** Percent of **adults** and **adolescents** who have received at least one dose of HPV vaccine by sex and race/ethnicity (F: females; M: males; NHW: non-Hispanic white; NHB: non-Hispanic black; H: Hispanic; NHO: non-Hispanic other)

\*Adolescent Hispanic and non-Hispanic other estimates suppressed because confidence interval wider than 20%.

Approximately 83% of parents/guardians (of adolescents between ages 11–17) reported that they had heard of the HPV vaccine, and 55% of these parents/guardians heard about it from their adolescent's healthcare provider.

Among adolescents who received at least one dose, 80% of their parents/guardians heard about the HPV vaccine from the adolescent's doctor (Figure 2).



**Figure 2.** Percent of *adolescents* who received at least one dose of HPV vaccine by where the parents/guardians heard about it

Parents/guardians reported several reasons for not vaccinating their adolescent, including the adolescent being too young (22%), concerns about the safety or side effects of the vaccine (12%), and because they did not think the adolescent needed the vaccine (11%).

## Conclusions

For adolescents, our estimates agreed with national estimates that rank SC as the state with the second lowest HPV vaccine initiation<sup>6</sup>. There were no national estimates available for vaccination uptake in adults over 26 years of age, but, for ages 19–26, CDC estimates range from 2.1% to 48.5% based on the National Health Interview Survey<sup>7</sup>. We found a higher prevalence of HPV vaccination among females and non-Hispanic blacks compared to males and those of other racial/ethnic groups among both adolescents and adults in SC. These disparities by sex and race/ethnicity have also been observed nationally for adolescents<sup>6</sup>.

The HPV vaccination is a form of primary cancer prevention, and the vaccine is recommended for all males and females ages 11–26 but may be given as early as age 9<sup>1</sup>. Work is being done both on a state and national level to improve awareness and education regarding the importance of the HPV vaccine for adolescents and young adults through public health, health care and community partnerships. In SC, the HPV vaccine is available from health care provider offices, pharmacies and DHEC health departments.

A no-cost vaccine is available for eligible adolescents ages 9–18 (Vaccines for Children or SC State Vaccine Program from enrolled health care providers and DHEC health departments) and eligible adults age 19–26 (DHEC health departments). Visit [www.scdhec.gov/scimmunize](http://www.scdhec.gov/scimmunize) for more information.

## References

1. HPV (Human Papillomavirus) Vaccine: What You Need to Know. CDC. Accessed 7 Jun 2018. [URL: <https://www.cdc.gov/vaccines/hcp/vis/statements/hpv.pdf>].
2. Viens LJ, Henley SJ, Watson M, et al. Human Papillomavirus-Associated Cancers — United States, 2008–2012. MMWR. 2016 Jul;65: 661–666.
3. Oliver SE, Unger ER, Lewis R et al. Prevalence of Human Papillomavirus among females after vaccine introduction: National Health and Nutrition Examination Survey, United States, 2003–2014. J Infect Dis. 2017 Sep;216(5):594–603.
4. Roberts Jr, Naife M, Jacobson RM, et al. Adolescent vaccination performance in South Carolina compared to the United States. J S C Med Assoc. 2015 Dec-2016 Jan;111(4):117–21.
5. SAS 9.4. SAS Institute INC., Cary, NC, USA
6. Walker TY, Elam-Evans LD, Singleton JA et al. National, regional, state and selected local area vaccination coverage among adolescents aged 13–17 years: United States, 2016. MMWR 2017 Aug;66(33): 874–882.
7. Trends in Adult Vaccination Coverage, 2010–2016. CDC. Accessed 18 Jun 2018. [URL: <https://www.cdc.gov/vaccines/imz-managers/coverage/adultvaxview/pubs-resources/NHIS-2016.html#hpv>].

*Prepared by:*

*Division of Surveillance, Bureau of Health Improvement and Equity*

*Division of Immunization, Bureau of Communicable Disease Control and Prevention*



**For more information about SC BRFSS and CHAS, contact:**

Chelsea Richard, MSPH  
SC BRFSS & CHAS Coordinator

richarcl@dhec.sc.gov  
803-898-1047