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The Case for HPV Vaccination in Arkansas

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Human Papillomavirus (HPV) infection is an important cause of cancer in Arkansas. While an effective HPV vaccine is available that could prevent many deaths, Arkansas faces several challenges that limit HPV vaccinations.

HPV-associated cancers include cervical, vulvar, vaginal, penile, oropharyngeal, anal and rectal. Between 2008 and 2012, Arkansas tied with Louisiana for the sixth highest annual incidence of HPV-associated cancers with the incidence of 13.5 per 100,000 persons. Nationally, the incidence is 11.7 per 100,000.[1]

Cervical cancer is the most common HPV-associated cancer. Arkansas has the second highest incidence in the nation with 9.2 per 100,000 females. The national rate for cervical cancer is 7.4 per 100,000 females.[1]

Oropharyngeal cancer is the second most common HPV-associated cancer. Arkansas is tied for the seventh highest rate with 5.2 per 100,000 persons. It is the most common HPV-associated cancer among men. Arkansas is tied for fifth place with an incidence of 8.9 per 100,000 males. The national oropharyngeal cancer rates are 4.5 per 100,000 for all persons; 7.6 per 100,000 for males only.[1]

HPV infection causes most (79 %) HPV-associated cancers. HPV types 16 and 18 are responsible for 80 percent of HPV-associated cancers. HPV types 31, 33, 45, 52 and 58 are collectively responsible for an additional 12 percent. HPV infection causes more than 90 percent of cervical and 70 percent of oropharyngeal cancers.[1]

In 2015, the age-adjusted mortality rate of cervical cancer in Arkansas was 3.6 per 100,000 females; in the United States it was 2.3 per 100,000. That year 57 women died of cervical cancer. From 2011 through 2015, the age-adjusted mortality rate of oropharyngeal cancer in Arkansas was 0.2 per 100,000; 0.3 per 100,000 in the United States. During that five-year period, 33 Arkansans died of oropharyngeal cancer, including 25 men.[2]

HPV INFECTION

HPV infection is very common. Almost all sexually active adults will be infected at some point. Most HPV infections are asymptomatic and eventually resolve without treatment. However, if not detected and treated, infection with the high-risk oncogenic types, especially types 16 and 18, is likely to persist and progress to pre-cancer or cancer.

The most recent national estimate of genital HPV infection with high-risk HPV types (types 16 and 18), among adults ages 18–59 years in 2013–2014, was 22.7 percent. The most recent national estimate of oral infection with high-risk HPV types, among adults ages 18–69 years in 2011–2014, was 4 percent overall; 6.8 percent among men; 1.2 percent among women.[3] Estimates of the prevalence of HPV infections in Arkansas have not been conducted. However, given our high incidence of HPV-associated cancers, it is likely that HPV infection in Arkansas is higher than in the nation overall.

Regular screening and treatment for precancerous lesions can prevent cervical cancer among infected women. Population-based screening for other HPV-associated cancers, including oropharyngeal cancer, is not available.

HPV VACCINATION

HPV vaccinations can prevent infection from the most common oncogenic HPV types. Gardasil-9, currently available in the United States, uses a single HPV protein from each of nine HPV types that self-

assembles into virus-like particles. The particles contain no oncogenes and are effective in inducing high titers of neutralizing antibodies. The antibodies are effective in preventing infection, but not effective in eradicating established infection. The current nine-valent vaccine provides long-term protection against seven high-risk HPV types associated with cancer and two low-risk types (6 and 11) associated with genital warts.

The Advisory Committee on Immunization Practices (ACIP) recommends routine HPV vaccination for all children ages 11 or 12. If not vaccinated then, routine recommendations are to vaccinate females ages 13 through 26 years and males ages 13 through 21 years. Children who receive a first dose before their 15th birthday need a two-dose series, with the second dose six months after the first. Those who receive their first dose after their 15th birthday need a three-dose series — the second dose given one to two months after the first; the third dose six months after the first. Immunocompromised persons should receive the three-dose series regardless of age.[4]

Since the introduction of HPV vaccines against oncogenic HPV types 16 and 18, there has been a documented decrease in the incidence of high-grade cervical lesions (cervical intraepithelial neoplasis grade 2 or higher) among women in populations with high vaccination rates. Changes in screening practices or risk behaviors have not accounted for the observed decrease.[5]

Similarly, HPV vaccination has been associated with an estimated 88.2 percent reduction in oral infection with HPV types 16, 18, 6 and 11 among vaccinated men, compared to unvaccinated men ages 18-22.[6]

ARKANSAS' VACCINATION CHALLENGES

Despite the potential for HPV vaccination to prevent most infections that lead to HPV-associated cancers, Arkansas HPV vaccination rates are very low. The 2016 National Immunization Survey for Teens shows that only 34.5 percent of Arkansas adolescents ages 13–17 are current for HPV vaccinations, compared to 43.4 percent nationally.[7]

Arkansas' HPV vaccination rate is also much lower than for other vaccines routinely recommended at ages 11 or 12, including tetanus, diphtheria, acellular pertussis (Tdap) and meningococcal (MenACWY) vaccines. The vaccination rate for at least one HPV vaccine dose was 54.4 percent, compared to 91 percent rate for Tdap and 89.1 percent for MenACWY.[7]

There are several important challenges to address if Arkansas is to improve HPV vaccination rates. First, redirect the key message about HPV vaccination to focus on cancer prevention. HPV infection is so ubiquitous that the previous focus on sexual transmission has not been helpful and may even be misleading, as people may assume that only promiscuous people are at risk.

Second, place greater emphasis on vaccinating according to ACIP recommendations. ACIP's recommendations should be the standard of care, rather than the State Board of Health requirements for school attendance, which omit HPV vaccination.

Third, Arkansas parents should receive equally strong recommendations for all three adolescent vaccinations — Tdap, HPV and meningococcal. By addressing missed opportunities to provide HPV vaccinations, lives can be saved. ▲

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