Human Papillomavirus (HPV) Vaccination among American Indians and Distance to Care and Survival for HPV-Associated Cancers

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ABSTRACT:
OBJECTIVE: Compared to other racial and ethnic groups in the United States (US), American Indians and Alaska Natives (AI/ANs) have a disproportionately higher burden of human papillomavirus (HPV)-associated cancers, comparatively lower HPV vaccination coverage, and fewer data available on HPV vaccination barriers and factors. This dissertation aimed to identify and assess barriers and facilitators to HPV vaccination among AI/AN people nationally and in Cherokee Nation. This dissertation also evaluated the association between travel distance to an academic health center and overall survival for HPV-associated cancer patients.

METHODS: In project and manuscript 1, we conducted a systematic review to identify factors which are barriers to HPV vaccination, support HPV vaccination, and are not associated with HPV vaccination among AI/AN people. We systematically searched twenty-four databases and gray literature sources, assessed study quality, and synthesized data. In project and manuscript 2, we designed, tested, and distributed a survey to estimate HPV vaccine initiation among AI adolescents in Cherokee Nation and determine factors associated with HPV vaccine acceptance or refusal among parents or guardians. We calculated unadjusted and adjusted weighted prevalence proportion ratios (PPRs) and 95% confidence intervals (CIs) for adolescent HPV vaccine initiation using log-binomial regression. In project and manuscript 3, we used multivariable Cox Proportional Hazards Models to evaluate the association between unidirectional travel distance (in miles) to an academic health center and overall survival for HPV-associated cancers.
RESULTS: The results of the systematic review, which included fifteen studies, revealed several barriers in this population, the most prominent of which were safety concerns and lack of knowledge about the HPV vaccine. Among AI adolescents accessing Cherokee Nation Health Services, 74.7% aged 13 to 17 years had received at least one dose of the HPV vaccine. The prevalence of adolescent HPV vaccine initiation was higher among those whose parents were 45 years or older (weighted PPR: 2.33; 95% CI: 2.14, 2.53), received a healthcare provider’s recommendation (weighted PPR: 3.21; 95% CI: 3.03, 3.41), disagreed that the HPV vaccine causes lasting health problems (weighted PPR: 3.96; 95% CI: 3.66, 4.27), and disagreed that the vaccine could cause side effects (weighted PPR: 1.89; 95% CI: 1.82, 1.96). More than 30% of the parents of adolescent girls (30.4%) and boys (33.0%) cited safety concerns as the main reason for not receiving the HPV vaccine. In project and manuscript 3, intermediate (25–74.9 miles) (hazard ratio [HR]: 1.23; 95% CI: 1.06, 1.43) and long (> 75 miles) (HR: 1.15; 95% CI: 1.01, 1.32) travel distances were associated with a higher hazard of death compared to the short distance group (< 25 miles). Similarly, the adjusted 5-year survival rates for HPV-associated cancers were highest in the short distance group (66.2%) as compared to long (62.6%) and intermediate (60.4%) distance groups.

CONCLUSIONS: The decision about HPV vaccination is a multi-layered process. The barriers and factors identified in our systematic review and survey, such as safety concerns, need to be addressed by providers and public health professionals. Failure to do so may widen disparities. For HPV-associated cancers, we found that travel distance to an academic health center was associated with overall survival; however, this relationship was not consistent at different travel distance cut-off points.