

# HPV Vaccination as a Tool to Reduce Socioeconomic Disparities in Cancer

## Author

Spencer, Jennifer C.

## ISBN

9781085753296

## Abstract

**Background:** Individuals living in high-poverty areas are more likely to develop cancers associated with human papillomavirus (HPV). Evidence also suggests that high-poverty counties also have higher uptake of HPV vaccine, but the effect of HPV vaccine on cancer disparities by area poverty remains unknown.

**Methods:** We constructed a dynamic infection model of HPV transmission that we modified to incorporate HPV prevalence, HPV cancer incidence, and HPV vaccination specific to low- and high-poverty counties. We created a synthetic population projecting the absolute and relative change in HPV cancer incidence in high- vs. low-poverty counties over a 75-year time horizon, as well as the potential cost and outcomes associated with increasing vaccination rates by 10% in each setting. Finally, we examined the cost-effectiveness of three evidence-based interventions designed to increase HPV vaccine uptake; school located vaccination, the Assessment, Feedback, Incentives and eXchange program, and a centralized reminder/recall intervention.

**Results:** We find HPV vaccination will dramatically reduce annual incidence of HPV cancers in both low- and high-poverty counties, but HPV cancer disparities by area poverty would remain relatively unchanged with slight decreases among women and little to no change in disparities among males. We also find that increases in HPV vaccine would produce greater absolute reductions in HPV cancers in high- vs. low-poverty settings, resulting in an incremental cost effectiveness in high-poverty counties that is nearly half that of low-poverty counties. Finally, we show that all three strategies to improve HPV vaccine uptake are cost-effective relative to status quo. The AFIX program is the lowest total cost and vaccination increase while a large-scale school-located HPV vaccination program is both the most effective and most costly alternative.

**Discussion:** HPV vaccine offers unprecedented potential to prevent HPV cancers but is underutilized in the US. Policy-makers seeking to reduce cancer disparities by area poverty should prioritize increasing HPV vaccine uptake as part of a multi-component strategy including addressing care access and social determinants of HPV cancer. As HPV vaccination falls below standard cost-effectiveness thresholds, considerable resources could be dedicated to increasing vaccine uptake, particularly in settings with high HPV cancer burden, while maintaining net societal benefit.

## Advisor

Wheeler, Stephanie B.

Committee member

Brewer, Noel T.; Trogon, Justin G.; Weinberger, Morris; Coyne-Beasley, Tamera

University/institution

The University of North Carolina at Chapel Hill

Department

Health Policy and Management

University location

United States -- North Carolina

Degree

Ph.D.

Source type

Dissertations & Theses

Language

English

Document type

Dissertation/Thesis

Dissertation/thesis number

13884676

ProQuest document ID

2296699658

Document URL

<http://libproxy.lib.unc.edu/login?url=https://search.proquest.com/docview/2296699658?accountid=14244>