



**Journal of Health Disparities Research and Practice**  
**Volume 12, MW CTR-IN Special Issue, Summer 2019, pp. 15-16**  
© 2011 Center for Health Disparities Research  
School of Public Health  
University of Nevada, Las Vegas

## **Bridging the Rural-urban Disparity: A Mixed-methods Analysis of Human Papillomavirus Vaccine Uptake in Montana**

Sophia Newcomer

*Corresponding Author:* Sophia Newcomer, [sophia.newcomer@umontana.edu](mailto:sophia.newcomer@umontana.edu)

### **ABSTRACT**

Purpose/Background: Since introduction of the human papillomavirus (HPV) vaccine in 2006, national efforts to increase vaccine uptake have been largely successful in urban areas, but less effective in rural settings. As of 2017, HPV vaccine series initiation rates were 10.8 percentage points lower for adolescents residing in rural versus urban areas of the U.S. This disparity leaves rural youth at higher risk of developing of HPV- caused cancers and other diseases, including cervical cancer, tongue and throat cancers, and genital warts. In Montana, a predominantly rural state, only 49% of adolescents are up-to-date on the recommended 2-dose vaccine series, well below the Healthy People 2020 goal of 80%. For this project, we sought to identify barriers to and opportunities for increasing HPV vaccine uptake in Montana.

Materials & Methods: We conducted a mixed-methods analysis that included quantitative analyses of 2013-2017 National Immunization Survey-Teen (NIS-Teen data for 13- through 17-year-old adolescents and qualitative analyses of interviews with Montana medical providers. Using NIS-Teen data we identified trends in vaccination rates, parent-reported provider recommendation to vaccinate, and parents' intention to vaccinate. Initial quantitative analyses informed development of a semi-structured interview tool. In these interviews, a range of Montana medical providers who care for adolescents, including family medicine physicians, pediatricians, physician assistants, and advanced practice nurses were asked about their approach to and experiences with recommending the HPV vaccine. Interviews were recorded and transcribed. Two study team members who were not involved in the interviews reviewed transcripts and conducted qualitative coding to identify themes across interviews. Qualitative analyses were conducted using NVivo software and quantitative analyses of NIS-Teen data were conducted using SAS software.

Results: In 2013-2017, adolescent HPV vaccine series initiation rates increased

Journal of Health Disparities Research and Practice Volume 12, MW-CTRIN Special Issue,  
Summer 2019

<http://digitalscholarship.unlv.edu/jhdrp/>

Follow on Facebook: [Health.Disparities.Journal](https://www.facebook.com/Health.Disparities.Journal)

Follow on Twitter: [@jhdrp](https://twitter.com/jhdrp)

from 46% to 65%. The percentage of parents reporting that a medical provider had recommended the vaccine for their adolescent child also increased, from 44% to 75%. Among parents of unvaccinated adolescents in 2017, almost half reported their provider did not recommend the vaccine and 22% reported receiving a provider recommendation but not intending to vaccinate their child within 12 months. Top reasons for not intending to vaccinate were concerns about the vaccine's safety and belief that the vaccine was not necessary for their child. In interviews with adolescent medical providers, parental concerns about the recommended age at vaccination and vaccine safety were commonly reported barriers to vaccination. Providers also reported that they and parents more frequently include adolescents in decision-making about HPV vaccination as compared to other vaccines.

Discussion/Conclusion: Our results support continued work in educating providers about consistent HPV vaccine recommendations, providing targeted information to address parent's safety concerns, and engaging adolescents in HPV vaccine promotion programs in Montana.