

PREVENT – Practice-based Approaches to Promote HPV Vaccination

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Human papillomavirus (HPV) infection is a leading cause of about 37,000 new cancer cases of cervical, ano-genital, and oropharyngeal cancers in the United States each year. While multi-valent vaccinations to prevent HPV infections have been available since 2006, **uptake of the vaccine is well below national Healthy People 2030 targets** (80% of adolescents at ages 13-15 years up-to-date with HPV vaccination). Adolescent vaccination rates are especially **low in rural areas** (about 10% lower than in urban areas). Compared to urban residents, rural residents have higher cervical cancer incidence and face unique barriers to HPV vaccination, including limited access to providers, fewer vaccine reminders, longer travel time to clinics, and less favorable societal norms about HPV vaccination. Rural healthcare teams are often limited by a lack of systematic methods to identify and track eligible patients and/or their parents for outreach. While much is known about clinic-based approaches to improve HPV vaccination among urban residents, less is known about their effectiveness among rural residents.

In a preliminary study that informed the PREVENT intervention, we developed a multi-level and multi-component intervention for a rural primary care clinic. It included healthcare team training activities and the distribution of patient education materials along with technology-based patient HPV vaccination reminders for parents/caregivers and young adult patients. Missed vaccination opportunities were assessed pre- and post-intervention ($n = 402$ and $n = 99$, respectively) by retrospective chart review and compared using Pearson χ^2 . The patient parent/caregiver and young adult patient population ($n = 80$) was surveyed following the reminder messages and penalized logistic regression quantified unadjusted odds of scheduling a visit. Missed opportunities for HPV vaccination declined significantly from the pre-intervention to the post-intervention period (21.6 vs. 8.1%, respectively, $p = 0.002$). Participants who recalled receipt of a vaccination reminder had 7.0 (95% CI 2.4-22.8) times higher unadjusted odds of scheduling a visit compared with those who did not recall one. Results from this intervention are promising and suggest that reminders can reduce missed opportunities for vaccinations in rural settings.

The proposed PREVENT study is designed to adapt and test approaches to effectively communicate the importance of vaccination to improve HPV vaccination rates for rural populations, and the sub-populations within (e.g. Hispanic persons). Our study includes a randomized controlled trial of adapted reminders to address the needs of diverse rural populations. We will create clinic systems to prompt vaccination for eligible children/adolescents and deliver messages to parents/caregivers, whose mode and content is specifically tailored for rural and Hispanic populations. We will compare **usual care** to **Automated Patient Reminders**, and to a higher-intensity intervention arm using automated messages plus linguistically and culturally tailored interventions to deliver live reminders, **Automated Plus Live Patient Reminders**. Once implemented into practice, our intervention could reduce disparities in HPV-associated and the burden of cancer in the United States.