



Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Clinician knowledge, clinician barriers, and perceived parental barriers regarding human papillomavirus vaccination: Association with initiation and completion rates

Lila J. Finney Rutten PhD, MPH ^{a,b,*}, Jennifer L. St. Sauver PhD, MPH ^{a,b}, Timothy J. Beebe PhD ^{c,b}, Patrick M. Wilson MPH ^{a,b}, Debra J. Jacobson MS ^{a,b}, Chun Fan MS ^{a,b}, Carmen Radecki Breitkopf PhD ^b, Susan T. Vadaparampil PhD, MPH ^d, Robert M. Jacobson MD ^{a,e}

^a Robert D. and Patricia E. Kern Center for the Science of Health Care Delivery, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA

^b Department of Health Sciences Research, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA

^c Division of Health Policy and Management, School of Public Health, University of Minnesota, Mayo Building A302, 420 Delaware Street SE, Minneapolis, MN 55455, USA

^d Department of Health Outcomes and Behavior, H. Lee Moffitt Cancer Center and Research Institute, 12902 USF Magnolia Drive, Tampa, FL 33612, USA

^e Department of Pediatric and Adolescent Medicine, Mayo Clinic, 200 First Street SW, Rochester, MN, USA

ARTICLE INFO

Article history:

Received 14 September 2016

Received in revised form 1 November 2016

Accepted 3 November 2016

Available online xxxx

Keywords:

Clinician barriers to vaccination
HPV vaccination completion
HPV vaccination initiation
Human papillomavirus vaccination
Parental barriers to vaccination

ABSTRACT

Purpose: We tested the hypothesis that clinician knowledge, clinician barriers, and perceived parental barriers relevant to the human papillomavirus (HPV) vaccination account for the variation in vaccine delivery at the practice-site level.

Methods: We conducted a survey from October 2015 through January 2016 among primary care clinicians (n = 280) in a 27-county geographic region to assess clinician knowledge, clinician barriers, and perceived parental barriers regarding HPV vaccination. Primary care clinicians included family medicine physicians, general pediatricians, and family and pediatric nurse-practitioners. We also used the Rochester Epidemiology Project to measure HPV vaccination delivery. Specifically we used administrative data to measure receipt of at least one valid HPV vaccine dose (initiation) and receipt of three valid HPV vaccine doses (completion) among 9–18 year old patients residing in the same 27-county geographic region. We assessed associations of clinician survey data with variation in vaccine delivery at the clinical site using administrative data on patients aged 9–18 years (n = 68,272).

Results: Consistent with our hypothesis, we found that greater knowledge of HPV and the HPV vaccination was associated with higher rates of HPV vaccination initiation (Incidence rate ratio [IRR] = 1.05) and completion of three doses (IRR = 1.28). We also found support for the hypothesis that greater perceived parental barriers to the HPV vaccination were associated with lower rates of initiation (IRR = 0.94) and completion (IRR = 0.90). These IRRs were statistically significant even after adjustment for site-level characteristics including percent white, percent female, percent ages 9–13, and percent with government insurance or self-pay at each site.

Conclusions: Clinician knowledge and their report of the frequency of experiencing parental barriers are associated with HPV vaccine delivery rates—initiation and completion. Higher measures of knowledge correlated with higher rates. Fewer perceived occurrences of parental barriers correlated with lower rates. These data can guide efforts to improve HPV vaccine delivery in clinical settings.

© 2016 Elsevier Ltd. All rights reserved.

Abbreviations: ACIP, Advisory Committee on Immunization Practices; CASE, Corroborate, About Me, Science, Explain/Advise; CI, confidence intervals; clinician barriers, clinician perceived barriers to delivering the HPV vaccine; clinician knowledge, clinician knowledge about HPV and the HPV vaccination; completion, receipt of three valid HPV vaccine doses; HPV, human papillomavirus; initiation, at least one valid HPV vaccine dose; IRR, incidence rate ratio; perceived parental barriers, parental barriers related to the HPV vaccination; REP, Rochester Epidemiology Project.

* Corresponding author at: Department of Health Sciences Research, Mayo Clinic, 200 First Street SW, Rochester, MN 55905, USA.

E-mail addresses: rutten.lila@mayo.edu (Lila J. Finney Rutten), stsauver.jennifer@mayo.edu (J.L. St. Sauver), beebe.timothy@mayo.edu (T.J. Beebe), wilson.patrick@mayo.edu (P.M. Wilson), djacobsn@mayo.edu (D.J. Jacobson), fan.chun@mayo.edu (C. Fan), radeckibreitkopf.carmen@mayo.edu (C.R. Breitkopf), susan.vadaparampil@moffitt.org (S.T. Vadaparampil), jacobson.robert@mayo.edu (R.M. Jacobson).

<http://dx.doi.org/10.1016/j.vaccine.2016.11.012>

0264-410X/© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Each year 38,000 new cases of human papillomavirus (HPV) associated cancers occur in the United States [1]. The Advisory Committee on Immunization Practices (ACIP) published its first HPV vaccine recommendations for routine use in females, 11–12 years of age, in 2007 [2]. The most recent survey in the United States shows that in 2015, among females 13–17 years of age, only 62.8% had received the first dose in the 3-dose series and only 41.9% had received three or more doses [3]. The ACIP published its recommendations for universal HPV vaccination of males on December 23, 2011 [4]. In 2015, among males 13–17 years of age, only 49.8% had received the first dose and only 28.1% had received three or more doses [3]. Rates of HPV vaccine initiation (receipt of at least one valid dose) and completion (receipt of at least three valid doses) are increasing at a much slower rate than the other recently licensed vaccines for adolescents.

A recent systematic literature review summarized HPV vaccination barriers among health care professionals and parents [5]. Health care professionals often identified parental attitudes and financial concerns as barriers to offering the vaccine. Parental barriers included lack of information, inconsistent use of preventive services, cost, low-perceived risk of HPV infection, and potential impact on sexual behavior [5]. Notably, lack of physician recommendation was frequently cited as a primary barrier [5]. Barriers to vaccination and faltering population coverage, point to the critical need to better understand how to engage clinicians in HPV vaccination efforts. Prior research has identified associations between clinicians' knowledge and attitudes about HPV vaccination and self-reported recommendation of the HPV vaccination [6,7]. However, to our knowledge, the link between clinician knowledge and attitudes and actual vaccination initiation and completion rates at the practice level has not been assessed.

1.1. Study objectives

We evaluated *clinician knowledge* about HPV and HPV vaccination, *clinician barriers* to delivering the HPV vaccine, and *perceived parental barriers* to HPV vaccination. We tested the hypothesis that greater clinician knowledge would be associated with higher rates of HPV vaccination initiation and completion. We also hypothesized that greater clinician barriers and perceived parental barriers regarding HPV vaccination would be associated with lower vaccination rates.

2. Methods

We conducted a survey using a validated instrument among primary care clinicians, including physicians, nurse practitioners, and physician assistants in a 27-county geographic region captured by the Rochester Epidemiology Project (REP) to assess clinician knowledge, clinician barriers, and perceived parental barriers regarding HPV vaccination. The REP research infrastructure links medical records from multiple clinicians to individuals residing in the community, and maintains an electronic index of diagnoses, drug prescriptions, and procedural information from these records, as well as hospitalizations, office visits, and emergency room visits [8]. The REP has captured virtually all health care delivered in Olmsted County, Minnesota since 1966 and was recently expanded to include neighboring counties in southeast Minnesota and western Wisconsin [9–11]. We integrated survey data with clinical data from the REP to evaluate associations between clinician knowledge, clinician barriers, and perceived parental barriers with practice-level estimates of HPV vaccination. The survey component of the reported research was submitted to the Mayo Clinic IRB and

deemed to be exempt. The analysis of existing clinical data through the REP and integration with ACS data was submitted and approved by the Mayo Clinic and Olmsted Medical Center IRBs.

2.1. Sample and data collection

2.1.1. Survey data

A comprehensive list of primary care clinicians within the clinical practices within our defined geographic catchment region was obtained, including information on clinical specialty, mailing address, and email address. Demographic and professional characteristics of primary care clinicians were summarized in Table 1. Data were collected from October 2015 to January 2016. Two modes of data collection were used including a mailed survey and web-based survey (sent via email) to enable an embedded experiment to compare two mixed-mode designs to two single mode designs with respect to response rate, non-response bias, item non-response, and cost per completed survey. The sample of clinicians was randomized to one of the four experimental arms. Details on the embedded experiment will be published separately.

2.1.2. Electronic data on HPV vaccination

The study cohort was obtained by electronically extracting data for all visits among children ages 9–18 to the participating sites from January 1, 2014 through December 31, 2015. The electronic indices of the REP were searched to identify all HPV vaccinations from 1/1/2009 to 12/31/2015 given using current procedural terminology codes (90,649, 90,650, 90,651). Patients ($n = 68,272$) were assigned to the site of their visits. For patients who visited more than one site (10,153; 15.0%), assignment was made to the site they visited most often from January 2014 through December 2015. In case of a tie in most frequent use, assignment was made to the site visited most recently. Each of the sites included in our analysis have had the HPV vaccine available since 2006.

2.2. Survey instrument

The Hearing Physicians Views – HPV Immunization National Trends Survey, developed by one of our coauthors (STV), was used with minor modifications to fit our population, location, and purpose [6,7]. Clinicians were asked questions to assess their

Table 1
Demographic, occupational and professional characteristics of primary care clinicians.

Characteristics	N ^a	%
<i>Race/ethnicity</i>		
White	241	86.1
Non-white	39	13.9
<i>Primary clinical specialty</i>		
Pediatrics	44	16.1
Family medicine	186	67.9
Obstetrics/gynecology/other	1	0.4
Primary care internal medicine	39	14.2
<i>Medical degree</i>		
MBBS/MD/DO	196	70
NP/PA	75	26.8
Other	3	1.1
<i>Board certification</i>		
Pediatrics	41	14.6
Family medicine	174	62.1
Internal medicine	34	12.1
	Median	Q1, Q3
Years since residency	13	3, 24
Age in years	45	35, 56

^a Total N = 280, not all measures sum to 280 due to missing values.

Download English Version:

<https://daneshyari.com/en/article/5537599>

Download Persian Version:

<https://daneshyari.com/article/5537599>

[Daneshyari.com](https://daneshyari.com)