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Identifying human papillomavirus vaccination practices among primary care providers of minority, low-income and immigrant patient populations

Q1 Denise M. Bruno[a,*], Tracey E. Wilson[a], Francesca Gany[b], Abraham Aragones[b]

[a] Department of Community Health Sciences, State University of New York, Downstate Medical Center, School of Public Health, 450 Clarkson Avenue, Mail Stop Code 43, Brooklyn, NY 11203, USA
[b] Immigrant Health and Cancer Disparities, Department of Psychiatry and Behavioral Sciences, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY, USA

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ABSTRACT

Objective: Minority populations in the United States are disproportionally affected by human papillomavirus (HPV) infection and HPV-related cancer. We sought to understand physician practices, knowledge and beliefs that affect utilization of the HPV vaccine in primary care settings serving large minority populations in areas with increased rates of HPV-related cancer.
Study design: Cross-sectional survey of randomly selected primary care providers, including pediatricians, family practice physicians and internists, serving large minority populations in Brooklyn, N.Y. and in areas with higher than average cervical cancer rates.
Results: Of 156 physicians randomly selected, 121 eligible providers responded to the survey; 64% were pediatricians, 19% were internists and 17% were family practitioners. Thirty-four percent of respondents reported that they routinely offered HPV vaccine to their eligible patients. Seventy percent of physicians reported that the lack of preventive care visits for patients in the eligible age group limited their ability to recommend the HPV vaccine and 70% of those who reported this barrier do not routinely recommend HPV vaccine. The lack of time to educate parents about the HPV vaccine and cost of the vaccine to their patients were two commonly reported barriers that affected whether providers offered the vaccine.
Conclusions: Our study found that the majority of providers serving the highest risk populations for HPV infection and HPV-related cancers are not routinely recommending the HPV vaccine to their patients. Reasons for providers' failure to recommend the HPV vaccine routinely are identified and possible areas for targeted interventions to increase HPV vaccination rates are discussed.

1. Introduction

Infection with human papillomavirus (HPV), the most common sexually transmitted infection, may result in cervical cancer and cancers of the anus, penis, vulva, vagina, and oropharynx, among others. From 2004 to 2008, there were approximately 33,000 cases of HPV-associated cancers diagnosed annually in the United States [1]. There are currently two HPV vaccines available and both are effective against the HPV types that cause up to 70% of HPV-related cancer cases [1,2]. Despite the availability of these safe and effective vaccines, HPV vaccine series initiation and completion rates remain low [2]. According to the 2012 National Immunization Survey-Teen (NIS-Teen), the overall initiation rate for the HPV vaccine series (first dose) was 54% for females with only 33% of girls completing the recommended three doses [3]. These rates were essentially unchanged from 2011 [4]. Of significance, 84% of unvaccinated girls reported a healthcare encounter where they received a vaccine other than the HPV vaccine [3]. A study based on 2008–2009 NIS-Teen data reported that white girls had a completion rate of 60% compared to 45% for blacks and 40% for Hispanics [5]. A trend analysis of NIS-Teen data for 2008 through 2011 reported that minority and below-poverty adolescents had consistently higher HPV vaccine series initiation than white and above-poverty adolescents. In this analysis, all race/ethnicity groups had completion percentages

* Corresponding author at: SUNY Downstate School of Public Health, 450 Clarkson Avenue, Mail Stop Code 43, Brooklyn, New York 11203, USA. Tel.: +1 718 270 2954; Q2 fax: +1 718 270 2533.
E-mail addresses: denise.bruno@downstate.edu (D.M. Bruno), tracey.wilson@downstate.edu (T.E. Wilson), ganyf@mskcc.org (F. Gany), aragonea@mskcc.org (A. Aragones).

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ranging from 32% to 40% [6]. Overall, these current HPV vaccination rates are well below the Healthy People 2020 goal of an 80% coverage level of 3 doses of HPV vaccine by age 13–15 years [7]. Although HPV vaccination rates among males are also low, coverage for boys who received at least one dose of HPV vaccine increased from 8.3% in 2011 to 20.8% in 2012, the first year after HPV vaccine was routinely recommended for boys [8].

The cost of the HPV vaccine in the United States is approximately $130 per dose, $390 for the series and is covered by most private health insurance companies [9]. The HPV vaccine is included in the Vaccines for Children (VFC) program which covers vaccine costs for children and teens without health insurance and for some children and teens who are underinsured [9].

Understanding the reasons for disparities in HPV vaccination rates is crucial because the populations that exhibit lower rates of HPV vaccination completion, African-Americans, Hispanics, and those living below the federal poverty level, have higher HPV related cancer rates [10–12]. Failure to increase vaccine uptake in these groups may worsen the disparities in HPV-related cancers and fail to prevent many HPV related cancer cases.

Prior research has documented the important influence of the medical provider on vaccine decision making among parents and adults, and recent studies have confirmed the importance of the providers' role in parental consent for the HPV vaccine [13–20]. Given the significant link between provider recommendation and vaccine acceptance and completion, we sought to understand physician practices, beliefs and barriers that could affect their utilization of the HPV vaccine among their racial/ethnic minority patients at higher risk for HPV infection and HPV related cancer [10–12,21].

2. Materials and methods

2.1. Study design and sampling method

We conducted a cross-sectional study of primary care providers serving large minority populations at higher risk for HPV infection in Brooklyn, New York between November 2010 and January 2012. The provider population included pediatricians, family practitioners, and internal medicine physicians serving neighborhoods identified from the American Community Survey [22] as having large minority populations (greater than 30%) and higher than the average rates of HPV related cancer cases according to the New York State Cancer Registry. Other inclusion criteria were: (1) New York State licensed general pediatrician, internal medicine or family practitioner, (2) minimum one-half of their patient population belong to minority populations (physician-reported), and (3) minimum one-third of their patient population were between the ages of 9 and 26 years old (physician-reported).

An inventory of providers was created from the New York State Department of Health provider database and professional medical organization membership lists (i.e. the local Chapters of the American Academy of Pediatrics). Multiple sources were used to increase the accuracy of this provider list to assure the inclusion of only actively practicing physicians, accurate practice location and specialty. This initial inventory was created based on practice location (zip code) and specialty (pediatrics, internal medicine, family practice). In total, 552 providers were identified. A stratified randomization using zip code of practice and type of provider (pediatrician, family practitioner or internist) was used to obtain a proportionally distributed number of providers in the study. A random sample of 120 was generated and then, based on number of refusals/ineligibles, generated again until the sample size was reached. The sample size was calculated using a 95% confidence interval and proportions of the different outcome (vaccination rates) ranging from 0.20 to 0.80. 59 providers randomly selected from the list to participate in the study did not meet the inclusion criteria described above (minimum one-half of their patient population belong to minority populations and minimum one-third of their patient population were between the ages of 9 and 26 years old). This information was not accessible before randomization and was self reported by providers or assessed by the research assistant (see Fig. 1).

2.2. Survey

The survey utilized in this study was developed by a group of 3 physicians (2 pediatricians and an internist) and 2 behavioral scientists. The survey included the following domains: knowledge about HPV, HPV vaccine and cervical cancer, attitudes and beliefs toward the HPV vaccine, physician barriers to recommending HPV vaccines, perceived patient barriers for the HPV vaccine and systems that could improve current HPV vaccination rates. The survey also included information on demographic variables, medical training history and a description of the respondents' patient populations. The survey was piloted with a group of six physicians, including pediatricians, family practitioners and internists who had patient populations similar to the study populations of interest. The survey was piloted for readability and clarity of survey items. Based on the pilot results, questions were revised prior to implementation. In December 2011, the Advisory Committee on Immunization Practices' (ACIP's) recommendations on the routine use of HPV vaccine for boys were adopted. In December 2011 and January 2012 (when data collection concluded) we received responses from 5 providers. We assessed the HPV recommendation practices of these providers and compared them to those that responded to the survey before December 2011 to assess the potential effect of this policy change.

2.2.1. Physician perceived barriers to HPV vaccine recommendation

Potential perceived barriers to recommending HPV vaccine to an eligible patient and the frequency of this occurrence included the following options: lack of time, cost, competing priorities, language, cultural barriers, cultural beliefs, and concern about offending parents/guardians due to link between HPV vaccine and sexual transmission. Surveyed logistical barriers included equipment, personnel, office space, office staff, and availability of language-appropriate, comprehensive patient education materials.

2.2.2. Physicians' perceived patient barriers

Physicians' perceived patient barriers to HPV vaccine included responses of always, very often, sometimes, rarely, never, do not know/not sure to questions on cost to patient/insurance reimbursement, patient pain or discomfort, patient or parent views vaccine as unnecessary, parent believes all vaccines are unnecessary or dangerous, patient does not want to discuss HPV infection due to embarrassment or other reasons, parent does not have the time, national guidelines are unclear or do not apply to my patient population, Physician perceived barriers to patients' following through with vaccine recommendation included the following choices: concerns about vaccine safety, relationship of HPV to sexual activity, lack of compliance with preventive care visits in patient population and frequency of these perceived barriers in minority patient population.

2.3. Data collection

Providers who were randomly selected to participate in the study received the survey by mail, together with an information sheet that explained the study, eligibility criteria and an incentive. The incentive, the most recent edition of the "Epidemiology

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