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Barriers and facilitators to HPV vaccination among rural Alabama adolescents and their caregivers

Erin D. Boyd [a,*], Janice M. Phillips [b], Yu-Mei M. Schoenberger [b], Tina Simpson [a]

[a] University of Alabama at Birmingham, Department of Pediatrics, Division of Adolescent Medicine, School of Medicine, 1600 7th Avenue South, CPPI 310, Birmingham, AL 35233, United States
[b] University of Alabama at Birmingham, Department of Medicine, Division of Preventive Medicine, School of Medicine, 1717 11th Avenue South, Medical Towers, Birmingham, AL 35294, United States

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ABSTRACT

Introduction: Half of all new human papillomavirus (HPV) infections occur in adolescents and young adults, and this population has poor HPV vaccination rates. Rural areas of the U.S. have high rates of HPV-related diseases and low vaccination rates as well. The purpose of this study was to determine the perceived barriers and facilitators to HPV vaccination among adolescents and their caregivers in rural south Alabama.

Methods: Vaccinated and non-vaccinated adolescents ages 11–18 years old and primary caregivers were recruited from three rural counties in south Alabama. Participants completed individual interviews to discuss perceived barriers to vaccination and factors influencing their decision to vaccinate. Discussion groups were held to determine potential solutions to barriers elucidated from the interviews. Interview and discussion group transcripts were analyzed, and themes were identified.

Results: Approximately 62.5% of adolescents had not initiated the HPV vaccine series. Of those adolescents who started the vaccine series (n = 9, 37.5%), about half completed it (n = 5). Few participants in this study reported speaking with their health care provider (HCP) about the vaccine in the past year. Lack of information about the vaccine, its side effects, and no HCP recommendation were common barriers cited by non-vaccinators. Facilitators to vaccination included cancer prevention, discussion with HCP, and peer testimonials. Potential solutions to barriers were also discussed.

Conclusions: Proposed strategies to increase HPV vaccination were similar between vaccinated and non-vaccinated groups. Education about HPV and the HPV vaccine is needed throughout these rural south Alabama communities to ensure informed decisions are made about vaccination and to increase vaccination rates.

1. Introduction

Human papillomavirus (HPV) is the most common sexually transmitted infection (STI) in the United States (U.S.) with about 14 million people infected annually [1]. In addition to cervical cancer, HPV is a known cause of throat, vulvar, vaginal, penile, and anal cancers [1]. Each year in the U.S., about 17,000 women and 9,000 men are affected by HPV-related cancers [2]. Alabama is among the states with the highest rates of cervical cancer mortality [3], with a mortality rate of 3.5 per 100,000 from 2011 to 2015 [4].

Each year, approximately half of all new HPV infections occur in adolescents and young adults (AYAs) 15–24 years old [5]. Given the morbidity and mortality associated with HPV, disease prevention is important. Three vaccines have been developed against HPV [6–9]. (All three were available when this study was conducted; only Gardasil®9 is available in the U.S. today.) The Advisory Committee on Immunization Practices (ACIP) recommends that adolescents be routinely vaccinated at 11 or 12 years old. Despite this, the U.S. has poor HPV vaccination rates among adolescents. The vaccine is most effective if administered before sexual debut [10]. However, with younger adolescents engaging in high risk sexual behaviors, protection against HPV infection can be challenging. Approximately 41% of students in grades 9–12 nationwide report having had sexual intercourse, with 3.9% having had intercourse before age 13 [11]. With low

* Corresponding author at: 1600 7th Avenue South, CPPI 310, Birmingham, AL 35233, United States.
E-mail addresses: eboyd@peds.uab.edu (E.D. Boyd), jmphillips@uabmc.edu (J.M. Phillips), yschoenberger@uabmc.edu (Y.-M.M. Schoenberger), tsimpson@peds.uab.edu (T. Simpson).

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vaccination rates and high rates of risky sexual behavior, many AYAs are at risk for HPV infection.

According to the 2016 National Immunization Survey-Teen (NIS-Teen), coverage with one or more doses of the HPV vaccine was approximately 65% among females and 56% among males [12]. Coverage with three or more doses among females and males was 43% and 32%, respectively. These figures show that adolescents are initiating the HPV vaccination series, but many do not complete it. In Alabama, HPV vaccination initiation and overall uptake for males and females 13–17 years old is lower than the national average. Results from the 2016 NIS-Teen survey revealed that about 54% of adolescent females in Alabama received at least one dose of the vaccine, and about 47% were considered up-to-date (this includes adolescents with three or more doses and those with two doses when the first HPV vaccine dose was initiated before age 15 according to the revised guidelines) [12]. Adolescent males in Alabama had an even lower rate of vaccination with approximately 49% having received at least one dose and 25% considered up-to-date [12].

Rural and underserved populations have a higher rate of HPV-related diseases, especially cervical cancer. Appalachia, which includes Alabama, is one such area in the eastern U.S. When comparing Appalachia to other areas of the country, the incidence of various cancers are higher [13], and cervical cancer screening rates are lower [14]. There are also disparities in HPV vaccination by race, age, insurance, and poverty level [15–17]. If this trend persists, disparities in HPV-related cancers among rural and poor populations may continue. Obstacles to vaccination exist and contribute to these disparities.

Prior studies have discovered a number of barriers to HPV vaccination among adolescents and their caregivers. Perceived barriers include vaccine safety, cost, lack of time or access, concern about adverse effects, limited knowledge about the vaccine, low perceived need for the vaccine, and parental concern that vaccination will increase adolescent sexual activity [18–20]. A lack of provider recommendation is one of the most common reasons parents state for not getting the vaccine for their child [20], and studies have shown that the most important predictor of vaccination in the clinical setting is a strong recommendation from a health care provider (HCP) [20–22]. Studies identifying factors that hinder HPV vaccination by HCPs have also been done. In one study by Bruno et al., 66% of physicians reported that a lack of time to educate parents and patients about the vaccine was the most common barrier [23]. Concerns about cost and reimbursement have also been cited by physicians as barriers [23,24].

1.1. Study aims

A number of studies examining the barriers to HPV vaccination from the parent and/or patient perspective exist; however, research focusing on barriers and facilitators to vaccination among the southern rural population is lacking in the literature. This is especially true for rural south Alabama. This study examined perceived barriers and facilitators to HPV vaccination in three rural south Alabama counties. Cervical cancer incidence rates for this region from 2005 to 2014 range from 9.5 to 18 per 100,000 [25]. The rate for Alabama during that same period was 8.6 per 100,000 [25]. The study aims were

1) To assess the perceived barriers and facilitators to HPV vaccination among rural health providers, adolescent females and males, and their caregivers;
2) To work with the targeted rural communities to develop strategies to address identified barriers and facilitators to HPV vaccination.

Results of this study can be used to develop the framework for a multifaceted intervention to increase HPV vaccination by addressing the needs of the study population.

2. Methods

2.1. Participants

Adolescents 11–18 years old and one of their primary caregivers, defined as a parent or legal guardian, were recruited from three rural counties in south Alabama. Flyers describing the study were disseminated throughout the counties in lobbies and exam rooms of health care facilities. Due to lack of available pediatric primary care clinics in one of the counties, study participants were recruited with the assistance of community health advisors from an established local community health education organization. Potential participants were asked to complete a telephone pre-screener to determine enrollment eligibility, and written informed consent was obtained. Participants were asked to complete a brief survey to collect demographic data and general information about their HPV knowledge. Adolescents and caregivers were compensated with a $30 Visa gift card. This study was approved by the University of Alabama at Birmingham Institutional Review Board.

2.2. Data collection

2.2.1. Interviews

Data were collected between March 2014 and March 2015. Semi-structured interviews were conducted separately with adolescents and their caregivers. For non-vaccinated adolescents, open-ended questions assessed the caregivers' and adolescents' reasons for lack of vaccine receipt, conversations they have had with their HCP about HPV vaccination, concerns about the vaccine, information that may encourage them to receive the vaccine, and intentions to vaccinate in the next three months.

For vaccinated adolescents, the interview assessed age at vaccine initiation, number of doses completed, factors influencing the decision to vaccinate, and conversations they may have had with their provider about the vaccination prior to vaccine uptake, including who initiated the conversation. Participants were also asked to describe any challenges they encountered with vaccine completion and techniques used personally or by their providers that ensured vaccine completion. At the time of data collection, the ACIP recommendations for a two-dose HPV vaccination series for younger adolescents had not been released. Therefore, vaccine completion refers to three doses for the purpose of this study. Both adolescents and their caregivers were asked to discuss ways to encourage HPV vaccination in their communities.

2.2.2. Discussion groups (Community Advisory Groups)

After the structured interviews were coded, analyzed, and interpreted by the research team, results reported in the individual interviews were used to generate guides for discussion groups known as mixed Community Advisory Groups. Participants were recruited using the same methods as the individual interviews. These groups, held in each of the counties, were composed of health care workers (i.e., nurses, clinical assistants), non-vaccinated and vaccinated adolescents, and caregivers. There were approximately nine participants per group and sessions lasted about one and a half hours. Topics addressed barriers to receiving HPV vaccination and potential strategies to improve vaccination rates. Participants were financially compensated with $30 Visa gift cards.