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The Importance of Immunizing Adolescent Males with the HPV Vaccine

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Abstract

Human papillomavirus (HPV) is the most frequently occurring sexually transmitted disease in the United States (Cipriano, Scoloveno, & Kelly, 2017). The acceptance and uptake of the HPV vaccine have been slower than other recommended adolescent vaccines (McLean et al., 2017). Feminization of HPV and the vaccine has resulted in the low rates of vaccination in males (Daley et al., 2017). The HPV vaccine has the potential to prevent morbidity and mortality in males from HPV related cancers, including penile, anal, and oropharyngeal (Daley et al., 2017). Despite the HPV vaccine proving as an effective way to prevent HPV infection and serve as an essential factor of health promotion for adolescent males, many barriers to immunization remain (Thomas & Snell, 2013). Implementing school-based HPV requirements would improve HPV vaccination rates by normalizing HPV vaccines as a crucial aspect of overall health for everyone (Daley et al., 2017). There are several procedures for healthcare providers to implement to enhance compliance with current recommendations. These include: incorporating HPV immunization implementation into all routine well-child visits in children ages 9-12 years; implementing an office reminder notice system to ensure proper follow up for all refused or missed vaccinations; and utilizing an office reminder notice system to ensure completion of initiated vaccine series. The purpose of this manuscript is to discuss the importance of immunizing adolescent males with the HPV vaccination and discuss methods to incorporate an immunization schedule into clinical practice that will enhance compliance with current guidelines.

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Epidemiology of HPV

Human papillomavirus (HPV) is the most frequently occurring sexually transmitted disease in the United States, accounting for a prevalence rate of approximately 79 million infections (Cipriano, Scoloveno, & Kelly, 2017). Each year roughly 14 million Americans receive a diagnosis of HPV infection, half of which are between the ages of 15-24 years (Fuller & Hinyard, 2017). In males, the high-risk strains of HPV are the leading cause of penile, anal, and oropharyngeal cancers, while low-risk strains cause genital warts (CDC, 2016). Current HPV guidelines published by the Advisory Committee on Immunization Practices (ACIP) for males include routine vaccination of all males ages 11-12 years, with catch-up vaccination for males ages 13-21 years (Kasting, Lake, & Vadaparampil, 2017). However, in the United States, acceptance and utilization of the HPV vaccine have been slower than other recommended adolescent vaccines (McLean et al., 2017). Feminization of HPV and the vaccine has resulted in low rates of vaccination in males leading to genital warts and cancers secondary to the illness (Daley et al., 2017).

Transmission of HPV

An estimated 85 percent of individuals will become infected with HPV at some point in their lifetime (Charlton et al., 2017). The HPV virus spreads through skin-to-skin contact. HPV transmission is possible even with the use of condoms, leading to the high prevalence of the disease. Individuals who have multiple sexual partners, men who have sex with men, and individuals who have frequent oral sex are at high risk for contracting HPV (Han, Tarney, & Song, 2017). The only method to prevent contact with the disease is to abstain from any sexual contact (Christensen, 2016). Most HPV infections are silent, asymptomatic, and do not cause symptoms or disease until years

later (Han et al., 2017). HPV passes through sexual contact without any signs or symptoms that the disease was transmitted. Given the high prevalence of the infection, any sexually active person is at risk of contracting HPV (Han et al., 2017).

Importance of immunization

Immunization of males not only decreases the incidence of adverse health outcomes related to the disease but also provides herd immunity for reducing the prevalence of HPV in the general population. The HPV infection is a major public health concern (McGhee et al., 2017). Previously, diseases caused by the HPV vaccine were only thought to affect women, but recent research indicates that prevalence in men is high and widespread among all age groups (Han et al., 2017). Despite increasing knowledge about HPV and the benefits of HPV vaccinations in males, there is no cure (McGhee et al., 2017). Furthermore, there are no screening tests currently available to detect HPV in men (McGhee et al., 2017). To date, the best defense against HPV is through education and vaccination (Han et al., 2017). In a recent study, the incidence rate of high-risk and low-risk HPV types was consistently higher among men than women (Sonawane et al., 2017). The overall prevalence of oral HPV infection was 11.5% in men and 3.2% in women (Sonawane et al., 2017). "Higher HPV prevalence among men suggests that there is a greater opportunity for increased vaccine effectiveness as a society as the vaccine coverage increases with the benefit of herd immunity" (Han et al., 2017). The HPV vaccination in adolescent males has the potential to reduce morbidity and mortality significantly, but it is imperative that healthcare providers implement new practices to increase vaccine uptake.

Current clinical guidelines

The HPV vaccine has the potential to prevent HPV related cancers, including penile, anal, and oropharyngeal (Daley et al., 2017). The ACIP published recommendations for universal HPV vaccination of males in 2011. The Food & Drug Administration (FDA) has approved two HPV vaccines for use in males in the United States. Both vaccines protect against HPV types 6 and 11 which lead to genital warts, and HPV types 16 and 18 which are known to cause certain cancers. Current ACIP guidelines recommend a new 2-dose schedule of the Quadrivalent (4vHPV) or 9-valent (9vHPV) HPV vaccine for males who initiate the vaccination series between the ages 11 and 14 years (CDC, 2016). The new 2-dose vaccine schedule has the potential to decrease costs associated with the vaccination, and also improve completion rates (CDC, 2016). The recommendation for males who initiate the vaccination series between the ages of 15 through 21 years, and for immunocompromised individuals is to receive the 3-dose series of the HPV vaccine (CDC, 2016). For men who have sex with men, current guidelines recommend immunization through age 26 years for those not already vaccinated (CDC, 2016). To achieve maximum effectiveness, immunizing males with the HPV vaccine is vital before they engage in sexual activity(Cipriano et al., 2017). Research has demonstrated the overall incidence of HPV infection within the first two years after having sexual intercourse is nearly 60 percent among males, emphasizing the importance of early immunization (Bernstein, Bocchini, & Committee On Infectious, 2017). Approximately 24 percent of males report being sexually active by ninth grade, that number increases to 58 percent by twelfth grade, this data supports the theory that targeting males at their 11-12-year-old well-child visits for HPV immunization can decrease the prevalence of the disease (Bernstein et al., 2017).

Efficacy and Safety

The Centers for Disease Control and Prevention (CDC) reports that the HPV vaccine is very safe (CDC, 2016). Safety of the HPV vaccine has been comprehensively evaluated, from extensive pre-licensure evaluations to extensive post-licensure monitoring, with no association with any serious adverse side effects (Maver & Poljak, 2017). The most frequent adverse side effects associated with the HPV vaccine in males include pain, redness, and swelling at the injection site (Stillo, Carrillo Santisteve, & Lopalco, 2015). Common systemic side effects within 24-48 hours after immunization include headaches, fatigue, vasovagal syncope, and myalgia (Stillo et al., 2015). Common side effects are short-term, typically lasting minutes to less than 24 hours and have no long-term effects (Stillo et al., 2015). Despite the HPV vaccines excellent safety profile, the recent controversy over safety concerns has compromised the previously released data supporting the efficacy of the vaccine (Maver & Poljak, 2017). Through extensive research, investigators have concluded that the alleged associated syndromes and serious adverse side effects were not related to the HPV vaccine (Javaid et al., 2017). Unfortunately, unrestrained media reporting has led to the rapid spread of rumors, fears, and concerns about the vaccine, leading to a decrease in vaccine uptake (Maver & Poljak, 2017). One of the most common reasons for vaccine refusal in adolescent males is directly related to concerns over the vaccine's safety compared to misconceptions about adverse side effects that are falsely released by the media and carry no research-based evidence (Javaid et al., 2017). Healthcare providers have a responsibility to ensure that parents and patients receive truthful, evidence-based information related to the HPV vaccine to increase vaccine uptake in male adolescents. By providing every parent and child with educational data emphasizing how the HPV vaccine can prevent cancers in adolescent males, health care providers increase the chances of vaccine uptake leading to a decrease in adverse health outcomes related to the disease.

Barriers to immunization

Despite the HPV vaccine proving as an effective way to prevent HPV infection and serve as an essential factor of health promotion for adolescent males, many barriers to immunization remain (Thomas, Strickland, & Higgins, 2017). Parental consent is required for the recommended population of 11-12-year-old males to receive the HPV vaccine. Parental consent to the HPV vaccine is at significantly lower rates than other routinely recommended vaccines for the adolescent population (Daley et al., 2017). There are several reasons for lack of parental consent for the HPV vaccine. These include lack of educational information with vaccine indications; concerns related to adverse reactions from the vaccine; apprehensions that the vaccine will imply parental consent for sexual behavior; and the financial burden of the cost of the vaccine (Cipriano et al., 2017). Poverty, demographics and educational background also play a role in lack of parental involvement and consent. A survey of health care providers reported that a shared apprehension of parents of adolescent males to the HPV vaccine is because they are upset by recommendations that their child receives a vaccine against a sexually transmitted disease (McGhee et al., 2017). Feminization of the HPV vaccine is another factor leading to lack of parental consent due to parents being uneducated about the fact that HPV related cancers and genital warts are preventable by immunizing males before they become sexually active. HPV immunizations were initially marketed for use in females only, leading to the feminization of the disease and vaccination. Research indicates that many parents of adolescent males believe that the HPV vaccine is only recommended for females, leading to a decrease in vaccine uptake (Daley et al., 2017). The role of the healthcare provider is to clarify the HPV feminization misconception by talking with parents of adolescent males during their routine office visits.

Health care provider recommendation is one of the most influential and consistent predictors of HPV vaccination in adolescent males (McRee, Gilkey, & Dempsey, 2014). Unfortunately, lack of provider

recommendation is the most common reason that parents provide for not vaccinating their child with the HPV vaccine (McRee et al., 2014). The role of the healthcare provider is to ensure proper education in all adolescent patients and their parents on the importance of receiving the HPV vaccine to decrease morbidity and mortality related to the most common sexually transmitted disease. Providers should address the HPV vaccines as mechanisms of cancer prevention. When discussing the vaccine with parents, healthcare providers must shift the conversation away from how HPV is transmitted, focusing on diseases it prevents, and the vaccine's role in cancer prevention (McGhee et al., 2017). A survey of teenage parents indicated that being provided with compelling recommendations for the HPV vaccine from a health care provider, including education on genital wart and cancer prevention, along with access to same day vaccination led to a significant association with initiation and completion of the vaccine series (Finney Rutten et al., 2017). Low vaccination rates among males, along with data demonstrating lower strength and consistency of clinician's recommendations of the HPV vaccine to male patients highlights the crucial role that healthcare providers play in the prevention of HPV in males (Finney Rutten et al., 2017). Every missed clinical opportunity to vaccinate a child not only leads to lower rates of HPV vaccination but also increases the chances of genital warts and cancers as a result of infection with HPV. The responsibility of vaccination falls primarily on two parties: the health care provider who must recommend it, and the parent who must accept it and provide consent (McGhee et al., 2017).

Recommendations for clinical practice

According to the CDC, the United States has not achieved high rates of vaccine uptake mainly due to healthcare providers missing critical clinical opportunities (Javaid et al., 2017). Implementing ACIP immunization recommendations into clinical practice is an essential and efficient way to ensure proper HPV immunization in adolescent males. To ensure that current recommendations are implemented, health care providers must stay up-to-date on current clinical guidelines. Conducting research and presenting the finding in the form of educational materials or continuing education opportunities are both ways to increase health care provider knowledge on HPV immunization in males. Incorporating HPV immunization practices into male well-child visits, along with other routine vaccinations is a simple protocol to implement in clinical practice. Healthcare providers can integrate HPV vaccine reminders into electronic health record (EHR) templates for well-child visits to ensure vaccinations get administered at all appropriate visits. For missed appointments or HPV vaccine refusal, reminder notices should be used to provide proper follow-up. Studies indicate that adolescents and parents who receive multiple reminder notices regarding recommended vaccines show a significant increase in vaccine initiation and completion (McLean et al., 2017). Unfortunately, many clinical practices have not incorporated patient reminder and recall activities. One method to implement into current clinical practice is to integrate reminders for initiation and completion of HPV vaccination series into electronic health record (EHR) systems (McGhee et al., 2017). Expanded EHR use can aid in the delivery of vaccine reminders to parents through text message and email. The role of health care provider is to ensure that every adolescent male and their parents are aware of the need for vaccination and also have proper access to the HPV vaccination to decrease the incidence of HPV related diseases.

In the United States, acceptance and uptake of the HPV vaccine have been slower than other recommended adolescent vaccines (McLean et al., 2017). Utilization of school-based approaches for national vaccine programs has not been adopted in the United States, leaving the responsibility of vaccination implementation to health care providers (Daley et al., 2017). Implementation of a school-based HPV vaccine program in the United States has the potential to increase the rate of adolescent males vaccinated with the HPV vaccine, leading to a decrease in genital warts and cancers. Australia was one of the first countries to implement a government-funded HPV vaccination program (Lee & Garland, 2017). The Australian school-based National HPV Vaccination Program provides free HPV vaccinations to all males and females ages 12-13 years. Since 2013, the rate of immunization in adolescent males in Australian school systems has increased from 30 percent to 70 percent, proving the success of the immunization program (Lee & Garland, 2017). Research indicates that "a national movement is required to implement state-by-state legislation and policy for school-based entry for HPV vaccination that is gender neutral" (Daley et al., 2017). This movement would improve HPV vaccination by normalizing HPV vaccines as an essential aspect of overall health for everyone (Daley et al., 2017). Implementing school-based HPV vaccine requirements in the United States will require collaboration among healthcare providers, policymakers, scholars, school children, and parents. Along with implementing school-based HPV requirements, the range of settings in which HPV vaccines get administered should expand to include schools (McGhee et al., 2017). Research indicates that administering HPV vaccinations in schools may prove as an effective way to increase vaccine uptake in adolescent males, as many males do not receive routine health care from pediatricians or primary health care providers (McGhee et al., 2017). Targeted patient messages including research-based educational materials are crucial to gaining the trust of parents when implementing the requirement of HPV vaccination for school entry. Adding the HPV vaccine to the list of required school entry vaccinations would save lives by preventing cancers and other related illnesses caused by HPV, and decrease the incidence of the most common sexually transmitted disease in the United States.

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