

# Human Papillomavirus Vaccine

Human Papillomavirus Vaccine: A Social Issue

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### **Purpose**

The purpose of this paper is to review the human papillomavirus (HPV) vaccine, vaccine pros and cons, explore the reasons for the poor vaccine rate in the United States (U.S.), and to explain how certified registered nurse practitioners (CRNP) can have an impact on vaccination rates. The future of the vaccination will depend on individuals' willingness to accept vaccinations, parent's willingness to have their preadolescent and early adolescent children vaccinated, and healthcare providers' willingness to educate both parents and the adolescents about the HPV. To date, research suggests that there is a great deal of misunderstanding about HPV infection, cervical cancer screening and the sequel of the HPV infection. Because of intense media portrayal of cervical cancer resulting from HPV infection as women's issues, delays in worldwide vaccinations have occurred; the amount of interest by males is significantly lagging even though various HPV-related cancers affecting males have been identified. However, the majority of studies indicate that adolescents and their parents are interested in HPV and the HPV vaccination but want to be better informed about the infection, transmission, screening, prevention and vaccination about HPV (Zimet, 2005). It is the authors' intention to explain societal perceptions of HPV as being a women's issue and the effect these perceptions are having on the current vaccination rate.

### **Human Papillomavirus Vaccine (HPV): A Good Solution, Why isn't it Working?**

Since the human papillomavirus vaccine (HPV) was developed over five years ago, HPV has been a trending topic in healthcare but not among the public. The human papillomavirus has become one of the most prevalent sexually transmitted infections (STIs) in teens between the ages of fourteen to nineteen years. There are over 100 different strains of the infection and 40 of

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them are sexually transmitted. Many of the types may go unnoticed because they produce no signs or symptoms.

Approximately 20 million individuals in the United States (U.S.) are infected with HPV; teenagers make up fifty percent of this population (HPV Vaccine for Preteens and Teens, 2011). The infection affects both females and males and is the causative pathogen for genital warts. In females, HPV acts as a precursor to a more serious complication such as cervical cancer. In the U.S. approximately 11,000 females are diagnosed with cervical cancer per year, and 4,000 of these females lose their life to the dreaded disease (HPV Vaccines, 2011). It has also been proven that certain cancer-producing strains of the disease predispose women to heart disease (Study Shows Link Between HPV and Heart Disease, 2011). Even though a vast number of teenagers contract this disease and an increased number of females lose their life due to complications of HPV, parents refuse to have their teenagers vaccinated. Why does this occur? Over the past five years, the Food and Drug Administration (FDA) has approved two vaccines that can aid in preventing the contraction and spreading of the human papillomavirus. The two vaccines are Gardasil and Cervarix. Gardasil protects against four types of HPV and Cervarix protects against two types. Given in three doses, these vaccines not only prevent teens from contracting HPV but also assist in protecting them from conditions such as genital warts, cancers of the cervix, penis, anus, vagina and vulva (HPV Vaccines, 2011); there are no beneficial effects for those who have already been exposed to HPV. The vaccination is approved for girls between the ages of twelve and twenty-six (HPV Vaccines, 2011), and boys between the ages of eleven and twenty-one (Gann, 2012).

The pros for this vaccine are obvious; it prevents HPV and its fatal complications, decreases the risk of developing cervical and other forms of cancer, and decreases healthcare

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cost. During July 2012, health officials released medical news that the HPV vaccine not only provide protection to those vaccinated, but also to individuals unvaccinated through a vaccination concept known as “herd immunity” (HPV Vaccine Reducing Infections, Even Among Unvaccinated: Study, 2012). This form of immunity through inoculations helps decrease or prevents the transmission rate of a disease by people in the community whom would otherwise spread it. Since the development of the HPV vaccine, the HPV infection rate has decreased from 32 percent to 10 percent in the vaccinated and 30 percent to 15 percent in the unvaccinated (HPV Vaccine Reducing Infections, Even Among Unvaccinated: Study, 2012).

As previously stated, the treatment of HPV and genital warts creates a great economic burden on the healthcare system, costing 3 billion dollars per year, not including complications that are associated with the HPV virus (Thomas, 2008); HPV vaccination is beneficial in helping to decrease healthcare cost.

The cons associated with the vaccine are minor side effects, cost, number of injections given, and unclear lifetime immunity. According to research, there are no serious problems associated with the vaccine; the most common side effects are the typical injection site reactions {pain, swelling, bruising, itching, and pain at the injection sites}, occasional fainting after injection {reason unknown}, fever, nausea, and headache (Gardasil, 2011; HPV Vaccines, 2011).

Another issue that is associated with the vaccine is cost. Some insurance companies do not pay for the vaccine series, leaving the parent or patient with an out-of-pocket expense. The vaccine can cost an individual approximately \$130.00 per injection and \$390.00 for the full series (HPV Vaccines, 2011); however, patients can ask for assistance from their physician and/or enroll in a medication assistance program through Gardasil. Difficulty paying for the injection can be a leading cause in incompleteness of vaccination series.

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The next con is that the vaccine is a three injection series given over a six-month period. Due to the number of injections and their time-frame for efficacy, individuals are less likely to complete the entire series. In 2011, Reuters Health completed a review of over 271, 000 medical records of females who received Gardasil, and found that 38 out of 100 females do not return to receive their second or third injection until a year after the initial injection (Grens, 2012). The reasons for decreased return rates are unknown at this time. Research is not sure if immunity is formed with only one or two injections.

The final con that has been identified is that the injection has not been proven to provide lifetime immunity. Current research suggests that the vaccine last up to six years. Studies are pending regarding lifetime immunity and if booster injection will be needed.

Since the vaccine clearly provides the public with more benefits than disadvantages, why are parent refusing the vaccine for their children?

### **HPV--A Global Social Issue**

Human papillomavirus (HPV) is the most common sexually transmitted infection (STI) in the United States with an incredibly high incidence rate of 80%. This means that nearly all Americans will become infected with HPV. Most women who have had sex have been infected with HPV at some point in their lives (Alabama Department of Public Health, 2012) (ADPH). The vast majority of infected individuals have no signs or symptoms which explains the exceedingly rapid rate with which the disease is spreading. Most cases of HPV will spontaneously resolve with the virus eradicating itself within 12-18 months in people with healthy immune systems, but certain HPV types will persist and progress to various forms of cancer, the most notable of which is cervical cancer. Herein lays the scope of the social issues identified with the virus. Since the introduction of the HPV vaccine, media portrayal, research,

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and policies have framed HPV as a women's health issue, focusing only on the risks associated with cervical cancer. Cervical cancer is the second leading cancer killer of women worldwide. In the United States, nearly 10,000 women are diagnosed with cervical cancer each year and 3,700 women die. This number is much smaller than in other countries largely because of the Papanicolaou (Pap) test, a screening tool for cervical cancer; with early detection, cervical cancer is usually treatable (National Conference of State Legislatures, 2012). The presence of HPV in a woman's body is a sign that she has had sex; the negative connotation as a "woman's disease" is a result of gender bias, negatively portraying this disease as a woman's health issue. Likewise, national contraception and abortion policies have come under enormous debate, questioning women's sexual behavior and morality (Kabage, 2012). While it goes without saying that women bear the physical burden of pregnancies and the brunt of societal finger pointing on moral issues, men are equally responsible for the nation's sexual state of affairs, yet they don't come under the same attack regarding morality as do women; therefore, treatment marketing and guidelines for HPV have largely been aimed at women. Policies have been instituted aimed solely at adolescent girls and young women since the HPV vaccine was first introduced in 2006, excluding men from bearing any responsibility in the prevention of this sexually transmitted infection. This is largely due to less media attention being drawn to the detrimental results being observed in the male population correlating with deadly cervical cancer in women.

To date, HPV guidelines have been very unsuccessful and met with much resistance by mothers of adolescent girls and young females. The least successful recommendation was to include the HPV vaccine in the list of mandatory school vaccinations. To be successfully received by the masses, vaccination information should be targeted at both male and female audiences; consequences of risky sexual practices should explicitly show the health risks to both

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populations in an effort to change the public's view that HPV is a female problem.

HPV significantly affects males involving cancers of the head, throat, neck, penis, and anus.

HPV has been linked to a rare but treatable form of throat cancer in men that apparently is increasing at an alarming rate. According to Dr. Eric Genden, chairman of the department of otolaryngology at Mount Sinai Medical Center in New York, HPV-related oropharyngeal cancer in men will surpass the rate of cervical cancer in women by year 2020 if current trends continue. Dr. Genden predicts an epidemic that the United States is just beginning to experience (ABC World News, 2011). According to another source, oropharyngeal cancer, which involves the middle part of the throat including the soft palate, the base of the tongue, and the tonsils is linked to HPV-16 in more than half of all cancers diagnosed in the oropharynx. This incidence of HPV-related oropharyngeal cancer has increased during the past 20 years, especially among men (National Cancer Institute, 2012). The increased trend in mouth and throat cancers has been linked to the practice of oral sex, which has moved the focus of transmittal from vaginal to oral origin. Clearly, this should redirect mainstream thinking to vaccinating both genders for human papillomavirus.

Prevention of HPV is possible through sound education and identification of high risk factors; primary prevention is the avoidance of those risky behaviors that increases the chances of acquiring the virus such as multiple sexual partners, non-use of condoms, early onset of sexual activity, and refusing HPV vaccinations. Secondary prevention includes cervical screening for early stage detection, HPV testing, and the removal of precancerous lesions caused by HPV. Unfortunately, for women, most of these preventive measures are implemented after they already have HPV through sexual exposure. The highest prevalence of HPV infections occurs in the 14-19 age group, emphasizing the importance of implementing public health policies aimed at

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reaching teenagers prior to becoming sexually active. A survey in which teenage girls reported whether they were sexually active or not showed that 29% of all 9th grade girls had engaged in sexual activity, 39% of all 10th grade girls, 50% of all 11th grade girls, and 60% of all 12th grade girls (Zimmerman 2006) as cited by Kabage, 2012.

Basic to the prevalence of HPV infection in the adolescent population is the psychosocial stage of development; adolescent reasoning is on a continuum. During the onset of puberty, body image is everything with the underlying question of “am I normal”? Children in the age group 11-13 years are unable to think in the abstract with poor impulse control, yet 7% of American youth report vaginal intercourse before age 13 (ADPH, 2012). In the middle adolescent years (14-16 years), teens are able to conceptualize cognitively and can think abstractly, but indulge in risky sexual behavior with the perception that nothing bad will happen to them. This age group practices serial monogamy with relationships being of short duration, thus changing partners often. By the later adolescent years, 65% of high school 12th grade females have had vaginal sex; 15% have had 4 or more lifetime partners (ADPH, 2012). Among females, the incidence of gonorrhea and Chlamydia is highest in 15 to 19 year olds, and in males it is highest among 20 to 24 years old with the 15 to 19 year old group following closely. To compound the problem, there seems to be an underlying denial or ignorance by parents of adolescents in this age group as to the true involvement of teenagers in sexual activity.

For highest efficacy, the vaccine should be given before sexual contact with another person; the Advisory Committee on Immunization Practices (ACIP) recommends routine immunizations of girls ages 11 & 12 (ADPH, 2012). Current available vaccines, Gardasil (developed in 2006), and Cervavix (developed in 2009), have shown to be 100% effective in preventing infections associated with the HPV types that are covered in the vaccines (Kabage,



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2012. Although the vaccines protect men from a number different cancers, both vaccines have been and continues to be marketed as vaccines to prevent cervical cancer, further fueling the mishandling of this sensitive issue by promoting the misconception that HPV is a women's health problem, thus leaving the responsibility of managing HPV incidence rates to women.

Tactics to assist with increasing the HPV vaccination rates have included:

- Mandatory school vaccination programs
- Educational programs to increase public awareness concerning HPV and vaccines
- Funding for research to study the safety of the vaccines
- Official recommendations released by public health departments

Of all tactics used, the mandatory school vaccination programs have met with the greatest resistance with fewer than half of all girls ages 13-17 receiving at least the first dose. While there is justifiable public concern about the safety of the vaccines, the primary arguments against them seems to be from conservative religious groups that argue mandatory administration of the vaccines could lead to promiscuity, risky sexual behavior, and sexually transmitted infections. It is seen as interfering with parents' rights to decide what is best for their children and undermining public and religious efforts to underscore abstinence and safe sex practices (Kabage, 2012). It is noteworthy that fears of increased sexual activity among adolescents have focused solely on girls, leaving boys out of the equation. It appears that while adults are arguing the effects the HPV vaccine will have on adolescent sexual behaviors, adolescents are continuing to have sex in the face of all the controversy. Policies mandating insurance companies shoulder the responsibility for the costs of the HPV vaccine have met with the most success, but as much as one-third of these policies have failed as well. After persistent pressures from various cancer research organizations and public health officials, in October 2011, the Advisory Committee on

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Immunization Practices of the CDC recommended that boys ages 11-21 years should be vaccinated (Harris, 2011) as cited by Kabage, 2012.

As has been the past reaction of the public on any issues regarding women's health such as abortions and contraceptives, positive steps to deal with the issues were made only after much criticism and hostile reactions. HPV-related cancers affect both males and females; thus, HPV vaccines should have been recommended for both sexes from the beginning which would have prevented responsibility for the disease falling solely on women. This may be the prime reason for the widespread delay in vaccination. In light of research findings that HPV-related cancers are affecting men's health at an alarming rate, public health officials believe that by viewing the HPV epidemic as a human disease rather than a women's disease, and expanding vaccination recommendations to include boys as well as girls, vaccination rates will increase and associated HPV related policies will receive more support.

### **Impact of the Advanced Practice Nurse's (APN) role in Increasing HPV Vaccine Rates**

Even though vaccines are one of the safest and most effective primary diseases strategies available, they are underused. An estimated 35 million United States adolescents do not receive all the recommended vaccines despite current national adolescent immunizations recommendations (Kahn, 2007). It is well established that adolescent girls and their parents have limited understanding of human papillomavirus (HPV). In a survey of university students in the United States, only 37% had heard of HPV (Zimet, 2005). Even though HPV is not currently a required vaccination for adolescent entering into middle school, it is still alarming that persons have never heard of the HPV infection or its clinical manifestations.

Among persons that have heard about HPV, there remain many misconceptions about the virus. This suggests that more effort is needed to educate young women and their parents about

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HPV and HPV vaccinations. The role of the APN includes a variety of functions including advocate, prevention and educating the adolescent and their parents about HPV. It is important to educate parents about complications related to HPV infection, such as the link between HPV and cervical cancer. Providing education about cervical cancer and the importance of HPV prevention and the effectiveness of the HPV vaccine will help increase awareness and equip parents to make well informed decisions (Garcia, 2007). Research shows that parents rely on healthcare providers for advice about issues pertaining to immunizations for their children and the majority of parents will accept provider's recommendations (Miller, Wilson & Waldrop, 2008).

It is critical for health care providers to provide accurate information to both parents and adolescents about HPV infection and vaccination. Ensuring widespread vaccine acceptance will require reaching out to pre-adolescents, teenagers and their parents, with details on the risk of HPV and the benefits of the vaccine that provides immunity for some of the most deadly strains of the virus (Gray, 2007). Given fact that HPV is a sexual transmitted infection (STI), there are potential barriers to vaccine acceptance. Barriers for parents who play a key role in ensuring that girls are vaccinated may include stigmas about STI's. They believed that the acceptance of the vaccine might be seen as permission for the adolescent to have sex (Zimet, 2005).

Another barrier was that parents believed that their child was not at risk for HPV related disease. Others just have concerns about the vaccine itself and its safety. Healthcare providers can also present a barrier to the HPV vaccination, because many providers reported that they rarely initiated HPV education. There reasons included a lack of HPV knowledge and subsequent discomfort, the perceived complexity of HPV counseling and time constraints in a typical visit. As advocates, healthcare providers can alleviate parental concerns and fears relating to the

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vaccine (Daley, 2011). Nurse practitioners can provide education that include the clinical purpose for the recommended age for giving the HPV vaccine; that is, it will achieve the greatest benefit if administered before initiation of sexual activity, the recommendation is age 11-12 (Sussman, Heliter & Sanders et.al, 2007).

APNs must be able to convey this information to adolescents and their parents, because one of the most important prerequisites for acceptance of the HPV vaccine among parents and adolescents will be a clear understanding of the disease and its consequences (Hilliard & Kahn, 2005). APNs must ensure that education concerning HPV is accurate and timely so that parents and adolescents, both male and females, can make informed decisions to receive this life-saving vaccine.

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