

Human Papillomavirus & Gardasil

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The Human Papillomavirus Epidemic

Human Papillomavirus (HPV) is the most common sexual transmitted disease (STD), with 79 million Americans currently infected and 14 million new infections occurring annually. There are over 40 strains of HPV that can infect the genital area, and nearly every sexually active man and woman will contract a strain of HPV in their lifetime (CDC, 2013). The virus is transmitted through skin-to-skin sexual contact, e.g. vaginal, oral, or anal sex. Many people will never realize they are infected because they have no symptoms and their bodies will clear the disease within two years. However, approximately 10% of infected men and women will not clear the virus, and their HPV infections cause more serious medical conditions. Women with HPV are more likely to develop cervical cancer from the infection, while infected men are at risk for developing various sex-related cancers such as penile and anal cancers. HPV can also cause other rare but serious diseases in men and women, such as throat cancer and recurrent respiratory papillomatosis, a condition that causes genital warts to grow in the throat (CDC, 2013).

The Gardasil Vaccine

The pharmaceutical company Merck developed the Gardasil vaccine to protect individuals against four strains of HPV that cause genital warts and various cancers. The strains that the vaccine protects against are HPV types 6, 11, 16, and 18. Gardasil protects against two strains of HPV (types 16 and 18) that cause approximately 75% of cervical cancers and another two strains (types 6 and 11) that cause about 90% of genital warts (Gardasil, 2013). The vaccine is given in three shots over a six-month period to build up immunity against HPV infection. Gardasil does not protect against all HPV strains that can cause cervical cancer and warts, so further preventative steps, such as getting pap smears, are suggested to avoid infection (NCI, 2011). The CDC recommends the vaccine be given to both boys and girls between the ages of 11 and 12, as well as men and women 13 to 26 years old who did not receive the shots when they were younger (CDC, 2013).

The Gardasil Controversy

The Gardasil controversy has evolved into different issues regarding the vaccine, which essentially fall into three main categories. The first controversy surrounding Gardasil was its sexual implications and stigma as the “promiscuity vaccine.” The second is the question of whether there are adverse side effects to the vaccine, and the last aspect is the current controversy, questioning the necessity of the vaccine.

These three aspects fall on a timeline, from 2006 to the present day, and show how the Gardasil controversy has evolved over time.

SEXUAL IMPLICATIONS

When Gardasil was first introduced to the public in 2006, the initial controversy was legislative, with states using a variety of approaches to increase the uptake of the vaccine. An extremely effective, yet controversial, approach was to mandate the vaccine for all adolescents attending school (Wailoo, 2010). The U.S. is no stranger to compulsory vaccination, and proposals to mandate the vaccine rekindled the age-old debate over ethical and legal bases as well as consequences of this methodology. Despite twenty-four states introducing bills to mandate the vaccine in 2006, almost all of the bills were deserted over the next three years. The main concern about mandating the vaccine for teens was its sexual implications. It was called the “promiscuity vaccine,” and this label conveyed the idea that getting the vaccine would encourage teens to become sexually active due to their becoming lulled into a “false sense of invulnerability to sexual disease” (CBC News, 2009). Many high profile conservative groups voiced their opposition towards mandating the vaccine due to these “promiscuous” implications (Wailoo, 2010). This initial controversy questioned the role of government interference in family values when it comes to vaccinations, and continues to be prevalent in the Gardasil controversy today.

SAFETY CONCERNS

Soon after the introduction of Gardasil, concerns about possible adverse side effects emerged. Between 2006 and 2008, twenty-three million doses of the Gardasil vaccine were distributed, with 12,424 adverse side effects reported to the Vaccine Adverse Event Reporting System (VAERS). Most of these reports were not serious; however, 6.2% of the reported effects (such as blood clots, death, and Guillain-Barre syndrome—a neurological disorder that causes muscle weakness and can progress to paralysis) were extremely harmful to those who experienced them. The Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) conducted studies to determine the correlation between the adverse effects reported and the HPV vaccine. Together they concluded that there wasn't a causal relationship between the two; however, the highly publicized purported relationship between autism and the measles, mumps, rubella (MMR) vaccine in the late 1990's caused many parents to view this new vaccination with trepidation (CBC News, 2009).

NECESSITY

As trust in the Gardasil vaccine began to increase, people began to question its necessity. A 2013 study published in *Pediatrics* examined the top reasons adolescents were not vaccinated against HPV. Although “Safety Concerns/Side Effects” and “Not sexually active” were frequent responses, the number one response was that the vaccine was “Not Needed or Not Necessary” (Darden, 2013). Despite more physicians recommending the HPV vaccination, uptake still remains low, seemingly due to these reasons. And since 90% of HPV infections will clear up without treatment, these concerns about the necessity of the vaccine seemed grounded in the experience of the disease. In addition, although the vaccination has only been on the market for seven years, its efficacy in preventing cervical cancer and genital warts is still unknown. The Gardasil vaccination is expected to create long-lasting immunity; however, the precise

duration of the vaccine is still being determined. These unanswered questions prompt skepticism over the long-term effectiveness of the vaccine (FDA, 2006).

Conclusion

The Gardasil vaccine has only been in circulation since 2006, yet it remains one of the most heavily debated vaccines in the United States. Since its onset, targeting girls has been the primary focus for the vaccine, yet boys are also at risk for developing HPV infections. The assumption that the HPV vaccine is only for girls is false, and more boys are now getting the vaccine at an early age. According to a study in *The Journal of Infectious Diseases*, the prevalence rate for HPV in women ages 14-19 has declined 6.4% within four years of vaccine introduction. Although there was low uptake for the vaccination, it is predicted that uptake will increase in the future (Markowitz, 2013). The current controversy of whether the vaccination is necessary, its sexual implications, and its possible adverse side effects appears to be very important in driving the decision to get vaccinated or not.

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