

Give it a Shot with Gardasil

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Cervical cancer is the second most common cause of cancer in women worldwide, with the primary cause being infection with certain forms of the human papillomavirus (HPV) (Agosti & Goldie, 2007; Constantine & Jerman, 2007). In the United States every year, an estimated 6.2 million persons are infected with HPV. For the year 2000, it was estimated that young people of both genders between the ages of 15-25 would account for three-quarters of new infections of HPV (Center for Disease Control, 2007; Constantine & Jerman, 2007). The National Health and Nutrition Examination Survey found that 57% of females aged 14-19, and 97% of those 20-59 years old, were sexually active. Among those females, the prevalence of HPV was highest for those in the younger age brackets, with approximately 40% occurring in those 14-19 years of age, and 50% in ages 20-24 years (CDC, 2007). Higher rates of cervical cancer in the United States have been found among African American and Hispanic women, and certain Asian subgroups of women (CDC, 2007). Additionally, geographic differences have been found to play a role in incidence and mortality (CDC, 2007).

More than two billion dollars per year are expended on the HPV infection (Temte, 2007). Cervical cancer is a major public health problem; as a result, the Gardasil vaccine was approved by the FDA in 2006, making it the first vaccine aimed at preventing infection of HPV. This vaccine targets strains 16 and 18, which cause 70% of cervical cancers, and strains 6 and 11, which cause 90% of genital warts (Harvard University Medical School, 2007). This report will focus on the Gardasil vaccine among adolescent girls, and will highlight the possible impact it will have on decreasing the rates of HPV among this population.

Determinants of Health

Biophysical

Adolescent girls are at risk for developing HPV since they are beginning at this age to engage in sexual intercourse, the primary route of HPV infection. Gardasil is aimed at girls 9-26, with recommended routine vaccination between 11-12 years of age. Vaccinating before sexual activity begins is based on statistics which report that HPV infection occurs in 54% of females within four years of their first sexual encounter. Sexual activity begins at a young age, with 7% of adolescents reporting their first sexual encounter before age 13 (Hernandez & Nestor, 2006). By the ninth grade, 29.3% of girls report sexual activity, which then increases to 62.4% by 12th grade (Temte, 2007). The average age of first intercourse by ethnicity is: African-American (15.8), Caucasian (16.6), Hispanic (17.0), Other (17.4), and Asian American (18.1) (Aneshensel, Levy-Storms, Upchurch, & Sucoff, 1998). Vaccinating adolescent girls before they begin sexual activity lessens the chance of them contracting the two strains of HPV that are the leading cause of cervical cancer.

Psychological

Psychologically, the Gardasil vaccine could lead to misconceptions of protection. Parents have voiced concern that such a vaccine would promote sexual promiscuity and encourage unsafe sex practices (Hernandez & Nestor, 2006). Parents are concerned that adolescents might misinterpret consent for the vaccine as approval for early sexual behavior (Zimet, 2006). Adolescents not properly educated about the vaccine may develop a false sense of security that it protects them from all forms of HPV and sexually transmitted infections.

Physical

Clearing up misconceptions on the extent of protection Gardasil offers, is also important when assessing the physical environment. Unsupervised after school hours provide an opportunity for adolescents to engage in sex. In one study, 56% of adolescents reported being at home unsupervised after school for more than four hours, and this did not differ between one or two parent families (Cohen, Farley, Martin, Schuster, & Taylor, 2002). If adolescent females have a false sense of protection from Gardasil, they may be less likely to use additional measures for protection. It is evident that sexual activity among adolescents is prevalent, therefore the need for proper education regarding Gardasil is critical.

Social

Within the social environment, viewpoints differ on acceptance of Gardasil. Societal attitudes can affect a parent's perception of their adolescent; for example, higher socioeconomic families often believe their adolescent is not having sex, therefore they do not see a need for Gardasil. Lower socioeconomic classes seem more aware of their adolescent's behavior and more accepting of the vaccination. Some parents oppose the vaccine because they trust their adolescents and "don't believe there is a need to vaccinate" (Constantine & Jerman, 2007). Pediatrician Dr. Marc Wager, says, "...some parents are totally in denial" (Wallis, 2007). This is despite the fact that almost two thirds of all females, by grade 12, are sexually active, despite their ethnicity.

Behavioral

The behavioral dimension is an area where teaching about Gardasil can have a positive effect because nurses are in a position to influence an adolescent's behavior. Gardasil is a protective measure against two strains of HPV and two strains of genital warts. Implementing

proper education regarding the vaccine, for both parents and adolescents, can eliminate misconceptions of the vaccine. Proper knowledge of the vaccine's protective measures should lead to more informed decisions.

Health Systems

Currently the Gardasil vaccine is a series of three shots and costs \$120 per dose. Most private insurance companies are covering Gardasil, and for those that do not have insurance, the Health Department will administer the vaccine for free. Gardasil has been added to the Vaccines for Children program, allowing children without coverage to get the vaccine for free (Wallis, 2007). All of these measures were taken to make the Gardasil vaccine affordable, accessible, and available to anyone.

Interventions

Primary

A primary intervention for Gardasil is to educate both parents and adolescents. This would include the protection it offers, and the age at which vaccination is advised. Education needs to be done to inform parents of the targeted age group, as it is most successful if given before one becomes sexually active. Adolescents need information on the vaccine's protection limits -- they need to know that it will not protect them against all types of HPV or sexually transmitted infections, and therefore safe sex practices still need to be used as a preventative measure. Pap smears are another form of primary prevention for females who are at least 21, even if they are not yet sexually active. Finally, Gardasil, as a vaccine, is a form of primary prevention itself against two strains of HPV and two strains of genital warts.

Secondary

Secondary interventions include annual Pap Smears for women that are sexually active. Adolescents are at risk for HPV and sexually transmitted infections once they have had intercourse. A second prevention would be to do DNA testing for HPV if a Pap smear came back abnormal and, if indicated, the removal of pre-cancerous lesions.

Tertiary

Tertiary interventions would be to administer Gardasil to females that currently have HPV, but not a strain targeted by the vaccine. This will help them to be protected against other types that cause the majority of cervical cancer. Another intervention would be Pap smears on a more frequent basis, or as ordered by their physician, to closely follow the individual after the removal of abnormal cells. Even with a normal Pap smear result, it is still important to educate women on the importance of routine Pap smears and protection against other sexually transmitted infections.

Role of the Population Health Nurse

The first role of the population health nurse (PHN) is education of both adolescents and their parents. Parents need to be educated about HPV and their adolescent's susceptibility once they begin sexual activity with emphasis on understanding that the vaccine provides the greatest benefits if initiated beforehand. Adolescents need to understand that the vaccine does not provide unlimited protection and need to be encouraged to engage in safe sexual practices. Adolescents also need to be informed that it is critical to continue routine Pap smears.

Secondly, the PHN needs to be involved with facilitating access to care. The vaccine may be costly, but is frequently available for free through the Public Health Department. The role of the nurse is to spread this information so that families are aware of the accessibility and affordability of the vaccine.

It is also important to gather data on those who are at an increased risk for contracting HPV but who are not receiving the vaccine. Research shows that African and Asian Americans are the least likely to give consent for vaccination, yet they are most at risk for mortality due to HPV. A lack of willingness to have their daughters receive the vaccine may be due to religious reasons or because it is not found culturally acceptable (Kahn, 2007). The PHN needs to be aware of cultural differences and be able to discuss these in relation to the vaccine.

Conclusion

The Gardasil vaccine is a form of primary prevention against two strains of HPV that cause 70% of cervical cancer and two strains that cause 90% of genital warts. While it is an excellent new form of protection, success depends on early vaccination. It is critical that health care providers have the ability to reach across age groups and cultures to educate, inform, and convince the public of its safety, preventive capabilities, affordability, and availability.

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