

The New Human Papillomavirus (HPV) Vaccine: Pros and Cons For Pediatric and Adolescent Health

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The new human papillomavirus (HPV) vaccine is a research breakthrough for pediatric/adolescent health to prevent cervical cancer and related morbidity. The annual health care cost for the treatment of cervical cancer and genital warts is estimated to be more than three billion dollars a year. The new HPV vaccine has incredible potential to improve reproductive health promotion, reduce health care costs, and close health care disparity gaps. However, issues both for and against the new HPV vaccine, including mandating vaccination, high cost of the vaccine, the short duration of protection offered, and the perceived promotion of sexual activity, cause confusion. Pediatric nurses, including those in advanced practice, benefit by understanding the pros and cons of these issues in advocating for their patients.

The human papillomavirus (HPV) is the most commonly acquired sexually transmitted infection in the United States for those ages 16 to 24 (Centers for Disease Control and Prevention [CDC], 2006). HPV is spread through skin to skin contact during sexual play and through all types of intercourse – vaginal, oral, and anal (Koutsky, 1997). Although condoms may offer some protection, they do not prevent the spread of HPV, which includes more than 40 different DNA strains or types (CDC, 2006). Most of these DNA types manifest themselves as genital warts or go unnoticed; however, four specific types (6, 11, 16, and 18) are linked to cervical cancer. These four HPV types are responsible for 70% of cervical cancers and 90% of genital warts (Harper, Franco, & Wheeler, 2006).

The National Cancer Institute's Surveillance Epidemiology and End Results (SEER) data estimated that in 2008, more than 11,000 women would be diagnosed with cervical cancer (Ries et al., 2008). Data on incidence rates for cervical cancer indicate that in the U.S., African-American and Hispanic women have the highest incidence rates of cervical cancer (CDC, 2006). These data also demonstrate a persistent rise in incidence of cervical cancer for both of these groups over the last six years.

HPV and the New HPV Vaccine

In June 2006, the Food and Drug Administration (FDA) licensed the first vaccine to prevent cervical cancer caused by certain types of HPV, specifically 6, 11, 16, and 18 (FDA, 2006). The CDC's Advisory Committee on Immunization Practices (ACIP) voted unanimously to recommend that girls 11 to 12 years of age receive the HPV vaccine (CDC, 2006).

The FDA licensed the HPV vaccine as safe and effective (FDA, 2006). This vaccine has been tested in more than 11,000 females (ages 9 to 26 years) around the world (American Cancer Society [ACS], 2005; Villa et al., 2005). No serious side effects were noted in these studies. The vaccine can be administered to girls as young as 9 and is also recommended for 13 to 26-year-old girls/women who have

not yet received or completed the vaccine series (FDA, 2006). Young, sexually active women may benefit from the vaccine, but there is less protection because these young women may already have acquired one or more HPV type(s) (Weinstock, Berman, & Cates, 2000).

The HPV vaccine is given through a series of three shots over a 6-month period. The second and third doses should be given at 2 and 6 months (respectively). It is not yet known how much protection girls/women would get from receiving only one or two doses of the vaccine. For this reason, it is very important that girls/women receive all three doses of the vaccine. The CDC, working with the FDA, will continue to monitor the safety of the vaccine after it is in general use (FDA, 2006). The American Academy of Pediatrics recommends that the HPV vaccine, which offers protection for approximately four to five years, be given to girls between 11 to 12 years of age (Harper et al., 2006; Kalavatis, 2007). Longer-lasting protection is unknown; therefore, at a cost of more than \$300 for one vaccination series, the cost of multiple series of vaccinations is a serious issue.

Arguments Against HPV Vaccination

Cost of vaccination. There are two main arguments against HPV. These are cost and promotion of promiscuity. The cost of vaccination is an issue for both health care providers and parents. The total cost of the vaccination, which exceeds \$300, has caused many pediatric practices to avoid stocking it. Costs to maintain vaccination stock for pediatric patients can exceed thousands of dollars, and since the HPV vaccine is available at most health departments, many patients are encouraged to get vaccinated there. However, few parents can afford to take additional time off from work, and an extra day for a well-child visit or an extra day to wait at the public health office for vaccination can be more than an inconvenience for families (Riley, 2007).

The slow reimbursement of all vaccine costs, charges for administration, refrigerated storage, expiration costs, and accidental waste account for fiscal concern in clinical practice. Although the cost of a vaccine is much less than the related morbidity, it is an additional burden to those who will underwrite these costs. Because the length of protection is only four to five years, repeated administration increases the cost. If a young girl is vaccinated at 12, at 16, and then at 20,

the cost of vaccination grows to over \$1,000. Increasing vaccination costs add to health disparities for the underinsured and increase fiscal burdens of pediatric practice. Thus, many pediatric offices are limiting their supply due to poor reimbursement by insurance companies, which puts them at a financial risk (Johnson, 2007).

The federal government can and does provide vaccines for girls and young women who qualify for Medicaid, but with millions of Americans uninsured, the cost of vaccination is an issue where attention must be paid (Moore, 2007). Even though the HPV vaccine prevents cervical cancer, its limited duration of efficacy is one reason many parents and young women prefer to forgo vaccination in the hope that a better vaccine will arrive on the pharmaceutical market soon.

Promotion of promiscuity. In the past, many research breakthroughs in sexual and reproductive health have had the additional challenge of facing critics who view these advances as an excuse to promote sexual promiscuity. Although research has shown that sexual and reproductive health education does not promote sexual activity or promiscuity (Guttmacher Institute, 2006), the vaccination of young girls with the HPV vaccine has raised the argument that this will cause a rise in promiscuity. This argument has been used previously to limit or prohibit sexual and reproductive health information for children and adolescents. Programs to encourage abstinence and limit sexual and reproductive health education have touted that these programs are the cause of a reduction in teen pregnancy. However, research from the Vital and Health Statistics of the CDC report that 30% of teens aged 15 to 17 and more than 63% of teen's aged 18 to 19 engage in sexual intercourse; condoms are used on average about 90% of the time (U.S. Department of Health and Human Services, 2004). While rates of teen pregnancy are decreasing, teens report they are sexually active despite programs to promote abstinence.

The argument that vaccination with the HPV vaccine will promote promiscuity has entered the public and political arena. A conservative political group called the Traditional Values Coalition (TVC) has sternly and publicly denounced the mandate of the HPV vaccine. In a recent online publication regarding the HPV vaccine and cervical cancer deaths, the TVC concluded that cervical cancer, genital warts, and their related morbidity are not a national health concern, and that HPV can be prevented through abstinence and marital fidelity (Lafferty, 2007).

The TVC strongly objected to the mandated HPV vaccine, citing influence by the pharmaceutical industry and suggesting that scheming by pharmaceutical companies to mandate this vaccine was for monetary gain. Texas Governor Rick Perry's mandate for HPV vaccination for all girls entering sixth grade in the fall of 2008 met resistance from the TVC, and subsequently, the Texas House approved a bill to block HPV as a mandatory requirement for school attendance (Castro, 2007). Governor Perry's mandate received criticism because it bypassed the legislative process and raised conflict of interest concerns due to a possible connection between Governor Perry and Merck pharmaceuticals. Since this conflict made national news in March 2007, other states have begun to discuss and finalize plans for HPV vaccination.

Challenges for HPV vaccination center on parents' religious and personal beliefs that adolescent sexual activity will increase with HPV vaccination. A similarly important vaccine, hepatitis B, is required for children entering junior high school or middle school. However, because hepatitis B can be contracted in ways other than sex, the hepatitis B vaccine was considered a health promotion measure (Salmon et al., 2005). Although advertising of the vaccine continues, concerns about promotion of sexual promiscuity persist. Pediatric

nurses, clinical nurse specialists, or advanced registered nurse practitioners can discuss and address such concerns along with the cost of administration at well-child visits.

Arguments for HPV Vaccination

Prevention of cervical cancer. HPV infects approximately 20 million people in the U.S., with 6.2 million new cases reported each year (CDC, 2006). A vaccine is now available to prevent 70% of cervical cancer resulting from HPV in young women. To be maximally effective, however, the vaccine should be given before sexual activity begins. The prevention of cervical cancer for young women is now available despite income, thus closing the gap on health care disparities for racial and ethnic minorities. Nurses are patient advocates, and in the interest of sexual and reproductive health, supporting this vaccination seems easy.

The ability for young women to be protected from an illness that results in death is worthy of consideration when parents discuss their children's vaccinations with pediatricians or pediatric nurse practitioners. The challenge for nurses is to educate, advocate, and emphasize health promotion aspects of the HPV vaccine while also addressing any personal and/or religious concerns that link the vaccine to early sexual activity.

Promoting sexual and reproductive health education. Acceptance of immunization information and a clear understanding of personal health beliefs are essential to promote sexual and reproductive health (Zimet et al., 1997). This should be an essential part of anticipatory guidance in the clinical practice setting. The question that most parents will have to resolve is whether the fear of a potential cancer later in life trumps fear about sex in adolescence (Wilson, 2007). Regular pap smears after young women become sexually active are part of the screening, with additional vaccination series as indicated, and education about sexually transmitted infections and transmission. Therefore, reminding adolescents and their parents that regular screenings for cervical cancer must continue after the HPV vaccine series is essential.

Finally, for adolescents who desire the vaccine but are deterred because their parents feel it will only promote sexual activity, nurses are again faced with decisions common in adolescent health care. These decisions present challenges to the advocacy role for nurses and providers. Information on birth control and reproductive health are given individually according to circumstance. The new HPV vaccine can be a point of discussion, not only for screening but for issues on sexual and reproductive health, sexuality, and the prevention of sexually transmitted infection.

Implications for Nursing

This discussion and debate about HPV vaccination warrants the participation of nurses in policies that affect pediatric and adolescent health. Nurses are patient advocates and must remain current in their knowledge on transmission of HPV and the HPV vaccine to educate patients, parents, and the public (Dempsey, Zimet, Davis, & Koutsky, 2006). As the debate continues over mandatory HPV vaccination for all 6th adolescent sexual activity and infringes on parental rights, nurses must be vigilant in their understanding of state vaccination mandates and laws along with changes in CDC guidelines. Parental fears and concerns may delay this vaccination and prohibit young girls from protection against cervical cancer and related morbidity.

Research on parental attitudes and beliefs about their decisions to vaccinate their daughters to promote reproductive health for future generations of women and potentially reduce health care costs is needed in the nursing literature. In the

meantime, providing parents and patients with accurate and current information is essential. Pediatric nurses are in a unique position to educate and advocate for pediatric and adolescent patients. The CDC provides current infection rates of sexually transmitted diseases in vulnerable populations for health care provider assistance. In addition, pediatric nurses must remain current on vaccination reimbursement rates and the availability of vaccination for patients who are either uninsured or "under-insured." Nurses are a trusted source who can provide accurate health care information to parents and teens, and therefore, must stay informed and current to maintain this trust, decrease health care disparities, and promote life-long health for this vulnerable group.

References

- American Cancer Society (ACS). (2005). *Detailed guide: Cervical cancer. What are the key statistics about cervical cancer?* Washington, DC: Author.
- Castro, A. (2007). *Texas lawmakers vote on cancer vaccine*. Retrieved June 20, 2008, from <http://www.washingtonpost.com/wp-dyn/content/article/2007/03/14/AR2007031400650.html>
- Centers for Disease Control and Prevention (CDC). (2006). *Sexually transmitted diseases treatment guidelines*. Retrieved June 20, 2008, from <http://www.cdc.gov/std/treatment/2006/toc.htm>
- Dempsey, A.F., Zimet, G.D., Davis, R.L., & Koutsky, L. (2006). Factors that are associated with parental acceptance of human papillomavirus vaccines: A randomized intervention study of written information about HPV. *Pediatrics*, 117(5), 1486-1493.
- Food and Drug Administration (FDA). (2006). *FDA news: FDA licenses new vaccine for prevention of cervical cancer and other diseases in females caused by human papillomavirus*. Washington, DC: Author.
- Guttmacher Institute. (2006). *Sexual and reproductive health information and services for men dangerously lacking*. Retrieved June 20, 2008, from <http://www.guttmacher.org/media/presskits/2005/03/15/index.html>
- Harper, D.M., Franco, E.L., & Wheeler, C. (2006). HPV Vaccine study group. Sustained efficacy up to 4.5 years of a bivalent L1 virus-like particle vaccine against human papillomavirus types 16 and 18: Follow-up from a randomized controlled trial. *Lancet*, 367(9518), 1247-1255.
- Johnson, L.A. (2007). *Cancer vaccine price, insurance problems limiting patient access*. Retrieved June 20, 2008, from http://www.usatoday.com/news/health/2007-02-02-gardasil-limits_x.htm
- Kalvatis, K. (2007). 2007 recommended childhood immunization schedule split in two. *Infectious Diseases in Children*, 20(1), 32-34.
- Koutsky, L.A. (1997) Epidemiology of genital human papillomavirus infection. *American Journal of Medicine*, 102(5A), 3-8.
- Lafferty, A. (2007). *No mandatory HPV vaccine for girls! Traditional values coalition*. Retrieved June 20, 2008, from www.traditionalvalues.org/modules.php?sid=3015
- Moore, S. (2007). HPV vaccine. *Clinician Reviews*, 17(1), 36-41.
- Ries, L.A.G., Melbert, D., Krapcho, M., Stinchcomb, D.G., Howlander, N., Horner, M.J., et al. (Eds.). (2008). *SEER Cancer Statistics Review, 1975-2005*, Bethesda, MD: National Cancer Institute. Retrieved June 20, 2008, from http://seer.cancer.gov/csr/1975_2005
- Riley, L. (2007). Many underinsured children not eligible for newer vaccines. *Infectious Diseases in Children*, 20(8), 22.
- Salmon, D.A., Moulton, L.H., Omer, S.D., DeHart, M.P., Stokley, S., & Halsey, N.A. (2005) Factors associated with refusal of childhood vaccines among parents of school-aged children. *Archives of Pediatric and Adolescent Medicine*, 159, 470-476.
- U.S. Department of Health and Human Services. (2004) *Teenagers in the United States: Sexual activity, contraceptive use, and childbearing*. Washington, DC: US Government Printing Office.
- Villa, L.L., Costa, R.L.R., Petta, C.A., Andrade, R.P., Ault, K.A., Giuliano, A.R., et al. (2005). Prophylactic quadrivalent human papillomavirus (types 6, 11, 16, and 18) L1 virus-like particle vaccine in young women: A randomized double-blind placebo-controlled multicenter phase II efficacy trial. *The Lancet Oncology*, 6(5), 271-278.
- Weinstock, H., Berman, S., & Cates, W., Jr. (2000). Sexually transmitted diseases among American youth: Incidence and prevalence estimate. *Perspectives Sex Reproductive Health* 36(1), 6-10.
- Wilson, B. (2007). *Health care states consider requiring HPV vaccine for girls*. Washington, DC: National Public Radio. Retrieved June 20, 2008, from <http://www.npr.org/templates/story/story.php?storyId=7190905>
- Zimet, G.D., Fortenberry, J.D., Fife, K.H., Tying, S.K., Herne, K., & Douglas, J.M. (1997). Acceptability of genital herpes immunization: The role of health beliefs and health behaviors. *Sexually Transmitted Diseases*, 24(10), 555-560.

Additional Reading

- Grassia, T. (2007). Questions about about implementing the HPV vaccine. *Infectious diseases in Children*, 20(2), 66-67.

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