

# Mandatory HPV Vaccination: An Arizona Policy Choice

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*The Human Papillomavirus (HPV) is a sexually-transmitted disease (STD) that if left untreated, can lead to cervical cancer in women. According to the U.S. Department of Health and Human Services (USDHHS), approximately 6.2 million Americans each year acquire a new genital HPV infection and about 20 million people are currently infected with HPV (2007b). The American Cancer Society claims that about 13,000 women will develop invasive cervical cancer this year, and about 31 percent of those women will die (American Cancer Society, 2007).*

*There are several approaches Arizona public administrators can take to lessen the spread of HPV and ultimately decrease the number of cervical cancer cases contracted through sexual behavior. In 2006, the Centers for Disease Control and Prevention recommended that girls be vaccinated against the human papillomavirus, starting at age 12. Legislation has been introduced in at least 41 states and D.C. to require, fund or educate the public about the HPV vaccine. In evaluating the most appropriate course of action for Arizona, it is necessary to consider effectiveness, cost, administrative feasibility, and political feasibility. When accounting for these factors, mandating HPV vaccination of all girls prior to entering the sixth or seventh grade proves to be the recommended course of action.*

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## Introduction

The Human Papillomavirus (HPV) is a sexually-transmitted disease (STD) that if left untreated, can lead to cervical cancer in women. According to the U.S. Department of Health and Human Services (USDHHS), approximately 6.2 million Americans each year acquire a new genital HPV infection and about 20 million people are currently infected with HPV (2007b). The American Cancer Society (2007) claims that about 13,000 women will develop invasive cervical cancer this year, and about 31 percent of those women will die. The HPV infection is particularly prevalent in young, sexually active females; approximately 40 percent between the ages of 14 to 19 and 50 percent between the ages of 20 and 24 have acquired HPV (USDHHS, 2007d). Gardasil®, the first vaccine available to help address HPV and cervical cancer, will help to reduce the number of women who contract HPV and “in turn, drastically reduce the number of women who develop cervical cancer and the number of women who die of cervical cancer” (Yanow, 2007). The State of Arizona currently does not require mandatory vaccination of adolescent girls for the HPV vaccine, but several states are moving in that direction. This policy analysis addresses specific policy alternatives as they relate to Arizona, special circumstances, and political climate.

The authors will seek to explore the following policy question: What can be done to decrease the number of cervical cancer cases as contracted through sexual transmission and HPV? The goals of this policy analysis are to: provide background information including an overview of the disease and its magnitude and prevalence; provide background on the HPV vaccine, current issues, and legislation proposed by Arizona and other states; provide a public and

stakeholder analysis; develop alternatives and criteria; evaluate alternatives; provide a recommendation for the chosen alternative; and provide a brief analysis of the political issues and other policy considerations surrounding the chosen alternative.

## Background

### *Explanation of HPV and Cervical Cancer*

The HPV infection is a STD and can affect the genital area of men and women (USDHHS, 2007a). The majority of people who are infected with HPV have no signs or symptoms and are unaware they are infected. For most women, the HPV infection goes away on its own in about two years (USDHHS, 2007a). For others, the virus will cause abnormal pap tests. HPV can develop into cervical cancer if left untreated.

HPV is a group of viruses that can have several different strains. There are about 40 different types of genital HPV (Yanow, 2007). The HPV types that are most associated with cervical cancer risk are types 16, 18, 31, and 45 (American Social Health Association [ASHA], 1998). These types are considered “high-risk” because if HPV develops into cervical cancer, these types appear most frequently (ASHA, 1998). The “low-risk” types are types 6, 11, 42, 43, and 44 and will cause genital warts, occasional abnormal pap tests, or no signs or symptoms at all (ASHA, 1998). The link between HPV and cervical cancer is significant. “HPV has been identified in 99.7 percent of cervical cancers, and approximately 70 percent of cases of cervical cancer are associated with HPV types 16 and 18” (Middleman, 2006, p. 554).

The HPV infection can affect both males and females. According to Dr. Amy Middleman, “it is estimated that by age 50 years, 80 percent of U.S. women will have acquired HPV in the genital tract” (2006, p. 554). Men and boys obviously are involved in the transmission of the HPV infection. The *New England Journal of Medicine* reported in May 2007 that “infection with HPV via oral sex is by far the leading cause of throat cancer, which strikes 11,000 American men and women each year” (Mundell, 2007).

Cervical cancer can be prevented with regular tests and follow-up gynecological visits. However, many women in the United States have limited access to health care services and receive inadequate information about HPV and cervical cancer (Yanow, 2007). Jessica Yanow from the Arizona Department of Health Services (ADHS) explains the problem further. “Most U.S. women who receive a diagnosis of cervical cancer have either never had a Pap test or have not had one in the past five years” (2007, p. 1). Minority women, specifically Hispanic and African American, are reported to be one and a half times more likely to develop cervical cancer than their Caucasian counterparts (Sipkoff, 2007).

### **HPV Vaccine**

#### *Overview*

The Food and Drug Administration licensed the HPV vaccine, Gardasil®, for use on June 8, 2006. Guidelines on how the vaccine is to be used and administered are determined by the Advisory Committee on Immunization Practices (ACIP), a panel of experts from the Centers for Disease Control and Prevention (CDC) in Atlanta (Stein, 2005). The vaccine was approved for females from ages nine to 26 years old and seeks to prevent HPV-type-related cervical cancer, “cervical cancer precursor lesions, vaginal and vulvar cancer precursor lesions, and genital warts caused by HPV types 6, 11, 16, or 18 among females who have not already been infected with the respective HPV type” (Centers for Disease Control, 2007). While the vaccine targets girls ages 11 to 12 years old, girls as young as nine are eligible to receive it, and it is also recommended for girls and women 13 to 26 years old who have not yet received the vaccine (USDHHS, 2007c). Experts are quick to note that girls should be vaccinated prior to the onset of sexual activity. This is important because the vaccine is most effective if girls have not yet been exposed to one of the four types of HPV that the vaccine protects against (USDHHS, 2007c).

Gardasil® is considered a quadrivalent vaccine because it is used to prevent “cervical cancer, precancerous genital lesions, and genital warts caused by HPV types 6, 11, 16, and 18” (Goesser, 2007, p. 573). These four types of HPV infection are important to prevent because they are “responsible for 70 percent of cervical cancers and 90 percent of genital warts” (Goesser, 2007, p. 573). The vaccine is administered intramuscularly in a three-dose series, with the second and third doses administered two and six months after the first dose.

#### *Efficacy*

Several studies have shown that the vaccine is efficacious. As reported by the Canadian Medical Association Journal, “prophylactic HPV vaccination was associated with a reduction in the frequency of high-grade cervical lesions caused by vaccine-type HPV strains” and was “also highly efficacious in preventing other HPV-related infection and disease outcomes, including persistent HPV infection, low-grade lesions and genital warts” (Fergusson et al., 2007, p. 469). This study also showed that the HPV vaccine was particularly effective “among women aged 15-25 years who received all 3 vaccine doses, had no more than 6 lifetime sexual partners and had no prior abnormal results from Pap screening” (Fergusson et al., 2007, p. 475). Another study demonstrated the vaccine’s efficacy, and noted that the vaccine prevented infection of HPV types 16 and 18 (Harper et al., 2005). The vaccine is also being shown to be effective several years after administration. According to the *New England Journal of Medicine*, the protection rate was 98 percent after three years. This protection rate is attributed to previously uninfected patients who received the vaccine (Garland, Hernandez-Avila, Wheeler, Perez, Harper, Leodolter, Tang, Ferris, Steben, Bryan, Taddeo, Railkar, Esser, Sings, Nelson, Boslego, Sattler, Barr & Koutsky, 2007).

#### *Vaccinating males*

The vaccine is currently undergoing clinical trials to determine the safety and effectiveness for males. It is important for males, as well as females, to receive the vaccine and be protected against HPV. For males, “HPV has been linked to penile, anal, and head and neck cancers and a tumor-like condition of the respiratory tract” (Associated Press, 2006). HPV has also been linked to throat cancer in both males and females (Mundell, 2007). Experts note that men, unlike women who receive screenings for cervical cancer through pap tests, do not normally see a doctor to check for throat cancer. Therefore, protection against this is critical. As explained by Debbie McCune Davis, an Arizona State Legislature Representative (D-Phoenix) and Program Director of The Arizona Partnership for Immunizations (TAPI), since boys are the main carriers of HPV, it is essential that boys be a part of the equation (personal communication, October 5, 2007). McCune Davis also notes that vaccinating males and females is a better strategy overall to effectively achieve herd immunity (personal communication, October 5, 2007).

#### *Arizona administration of immunizations*

According to Dr. Kathy Fredrickson, there are approximately 850 providers in Arizona that vaccinate children (personal communication, October 4, 2007). Dr. Fredrickson explains that these providers order the vaccine from ADHS and administer the HPV vaccine. The Federal Vaccines for Children (VFC) program provides funding for the vaccines for children ages nine through 18. The VFC provides vaccines for children who are on Medicaid, uninsured, Native American, and underinsured if seen at a Federally Qualified Health

Center (in Arizona, these are called Community Health Centers). There is a potential gap for those individuals who have private insurance; some private insurance companies will not pay for routine vaccines (or for certain types of vaccines). Therefore, some of these individuals choose to pay for vaccines on their own. However, Arizona state funds are available to help pay for those who fall in that gap when the individual is seen at a private physician's office or public health department. These state funds are paid through the state general funds. Currently, Arizona receives about \$10.4 million for this state portion. As noted by Dr. Kathy Fredrickson, "No parent should have to pay out of pocket for the vaccine. So, if private insurance doesn't pay for it, the state will pay for it. They can go anywhere and can get vaccinated and they do not get charged for the vaccine" (personal communication, October 4, 2007).

*Proposed legislation in other states*

In 2006, the Centers for Disease Control and Prevention recommended that girls be vaccinated against the human papillomavirus, starting at age 12. Legislation has been introduced in at least 41 states and District of Columbia to require, fund, or educate the public about the HPV vaccine. In addition, at least 17 states have enacted legislation, including Colorado, Indiana, Iowa, Maine, Maryland, Minnesota, Nevada, New Mexico, New York, North Carolina, North Dakota, Rhode Island, South Dakota, Texas, Utah, Virginia and Washington (National Conference of State Legislatures, 2007). Appendix A illustrates specific proposed and enacted legislation.

In March 2007, the Virginia legislature passed a bill that made HPV vaccinations mandatory as part of a school vaccine requirement. Their governor sent an amendment back to the legislature that allowed parents more exemption rights. The language in Virginia Chapter Number 922, as enacted from S.B. 1230, states "after having reviewed materials describing the link between the human papillomavirus and cervical cancer approved for such use by the Board of Health, a parent or guardian may elect for his daughter not to receive this vaccine." The legislature approved the amendments and the bill was signed into law, requiring all females to have received the first of three doses of the vaccine prior to the start of sixth grade. This makes Virginia the only state with a school requirement for the HPV vaccine (National Conference of State Legislatures, 2007).

Other states have taken measures to make the HPV vaccine available on a voluntary basis. The New Hampshire Health Department provides vaccine at no cost to girls under the age of 18. In the first year, the health department reported distribution of more than 14,000 doses across the state. In January 2007, the governor of South Dakota announced plans to combine \$7.5 million in federal vaccine funds with \$1.7

million from the state's general fund to provide the vaccination to girls between the ages of 11 and 19 (New Hampshire, H.B. 1061). By May 2007, the state had distributed more than 20,000 doses of the vaccine. The state of Washington will spend \$10 million to voluntarily vaccinate 94,000 girls over the next two years (National Conference of State Legislatures, 2007).

*Arizona policy initiatives and proposed legislation*

The Arizona legislature has proposed, but not enacted, several pieces of legislation pertaining to the HPV vaccine (Table 1). Senate Bill (S.B.) 1385 proposed the addition of \$2.6 million into the budget intended for adult vaccinations. The Arizona Health Care Cost Containment System (AHCCCS) provides vaccines to women between the ages of 19 and 26 who are eligible. S.B. 1437 proposed \$200,000 be allocated for outreach and education of HPV and the vaccine, but did not pass. S.B. 1502 would require insurance providers cover the cost of the HPV vaccine. An additional piece of proposed

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legislation, House Bill (H.B.) 2086, would require insurance coverage of the HPV vaccine and cervical cancer screenings. S.B. 1093 would prohibit the health department from requiring the HPV vaccine (National Conference of State Legislatures, 2007). According to Dr. Kathy Fredrickson and Debbie McCune Davis, S.B. 1093 did not move as a bill,

but the language prohibiting the health department from mandating the vaccine was written as a footnote into the appropriations bill for the budget (personal communications, October 4 and 5, 2007). This language would need to be removed before Arizona can consider mandatory vaccination.

**Table 1.** Arizona Proposed HPV Legislation

Bill	Date	Legislation	Result
S.B. 1385	2/1/07	Would allocate \$2.6 million from the 2007-2008 state general fund to pay for HPV vaccination for women 21 to 26 years of age. A federal matching fund of \$5.6 million is reported.	Referred to rules and appropriations.
S.B. 1437	2/1/07	Would appropriate \$200,000 for outreach and education on numerous vaccines, including the HPV vaccine.	Referred to rules and appropriations.
S.B. 1502	1/30/02	Would require insurance providers to cover the cost of the HPV vaccine.	Held in Rules, Health and Financial Institutions Insurance and Retirement Committees.
S.B. 1093	n.d.	Would prohibit the health department from requiring the HPV vaccine. The health department still has authority on all other vaccine requirements.	Held in House.
H.B. 2086	n.d.	Would require insurance coverage of the HPV vaccine and cervical cancer screenings.	Held in Rules Committee.

Source: National Conference of State Legislatures, 2007

## Rationale for Public Policy and Government Intervention

There are several points to consider when assessing whether government should be involved with helping to protect against HPV and cervical cancer. According to Dr. Kathy Fredrickson, one of the main tenets of public health is to control disease for the public good (personal communication, October 4, 2007). A single physician is only treating an individual patient and therefore is not looking out for the collective good. Dr. Fredrickson continues to explain that there are three public health strategies that can be applied to any disease or public health condition: (1) Education; (2) Biomedical Engineering (making vaccines better and more effective); and (3) legal mandates.

Debbie McCune Davis explains how without government intervention, there is not enough broad utilization of vaccines to ultimately eliminate the disease. McCune Davis stated, "If it was merely a product that only impacted that individual and there was no benefit to society from the vaccine, then I would probably not feel strongly about government being involved" (personal communication, October 5, 2007). However, she notes, because there is a social benefit government does have a place in setting policy.

Economic scholars have also weighed in on government intervention in the area of disease control. They explain how public goods and services such as vaccines are positive externalities in consumption (Sharp, Register, and Grimes, 2006). The overall benefit of the vaccine not only benefits the individual who receives the vaccine but also any individuals who would have contracted the disease from the immunized person. This occurs any time the marginal social benefit exceeds the marginal private benefit. The private market (or if left up to individuals only) would "undervalue inoculations by not taking into account the value of the spillover" and "the market will underproduce inoculations" (Sharp, Register, and Grimes, 2006, p. 146).

## Public and Stakeholder Analysis

The spread of HPV is arguably a disease that affects society as a whole. As previously mentioned, many men and women do not realize they are carriers of the disease and may unknowingly pass it on. Health officials argue that this is a public health issue and should be treated as such. However, convincing the public of the severity of the issue may become controversial and troublesome.

Jessica Yanow, Arizona Living Well Manager for ADHS, Bureau of Chronic Disease Prevention, argues that it would be difficult for the state of Arizona to mandate vaccination of the disease. Yanow states:

Even though it's a health issue, often there is a notion within the public that this is about promoting sex ... Arizona as a state has been conservative related to adolescent sexuality. We have had a tremendous amount of funding for abstinence-only programming. Some might argue that this vaccine shouldn't be given because unmarried adolescents and young women should not be having sex anyway, and if they wait until they are married, they won't have to worry about HPV or cervical cancer.

The chronic disease prevention manager argues that in addition to unlikely public acceptance, the vaccine is very costly (Yanow, J., personal communication, Sept. 25, 2007).

McCune Davis argues that vaccinating against HPV is a social issue. "The advantages are that we protect a generation of women from getting cervical cancer and we can do that by risking exposure. Any time we can reduce or eliminate a disease that ultimately can result in death, it seems like there is a social advantage in doing that," McCune Davis said. As policymaker she argues that education and outreach on the HPV vaccination are necessary at both the public and legislative

level (McCune Davis, D., personal communication, Oct. 5, 2007).

Parents of adolescent girls play a significant role in public acceptance of the HPV vaccine. "Parental acceptance of vaccination is crucial because adolescents constitute the ideal group for immunization" (Davis, Dickman, Ferris, and Dias, 2004, p. 193). Without their support, public health officials and legislators have a tougher battle in mandating HPV vaccination, outreach, and education. In this capacity, education of HPV must begin with this audience. Parents opposed to the HPV vaccination are of the belief that it would promote earlier sexual activity of their children. Studies show that parents who are more educated about the HPV vaccine have a greater acceptance rate. Often, the greatest resistance amongst parents is of those who have not received necessary vaccinations (aside from HPV) themselves (Davis et al. 2004).

There are several groups that have come out for and against the HPV vaccine. Among the most vocal groups against the vaccine are the Family Research Council, Concerned Women for America, National Abstinence Clearinghouse, and Focus on the Family. However, some of these conservative groups do not necessarily oppose administering the vaccine but oppose making it a mandatory requirement for school entry (Stein, 2005). Along with multiple governmental health care organizations, organizations such as the Planned Parenthood Federation of America are speaking out in support of the vaccine. In response to a defeated proposal in Georgia, the assistant director of government relations for Planned Parenthood stated, "It's really a shame that politics and ideology are getting in the way of saving lives" (Hinojosa & Sipkoff, 2007).

According to McCune Davis, there are geographical differences among those who may support or not support mandatory vaccination in Arizona. McCune Davis explains that Tucson would likely be most open and progressive in their view of mandatory vaccination. "They believe if the vaccine has benefit, everyone should be able to get it," she said (personal communication, October 5, 2007). Phoenix area residents would likely be a little more fiscally cautious in their approach than Tucson. She notes, however, that if residents have enough information about its efficacy, they would be open to mandatory vaccination. Rural counties are the least likely areas to support mandatory vaccination; TAPI focuses much of their educational efforts regarding HPV in those areas to overcome this stigma (personal communication, October 5, 2007).

## Alternatives

There are many approaches to dealing with what has been deemed the "third most common malignancy in women worldwide" (Taira, Neukermans & Sanders, 2004, p. 1915). The deadly virus can be prevented through the administration of vaccines. Mandatory vaccination of adolescent girls, the

primary victims of cervical cancer, is one approach. Another tactic is to mandate vaccination of adolescent girls and boys. Mandatory school vaccination with an opt-out option for parents presents another alternative. Increased public education efforts may provide another tool in the fight against the deadly virus. A final option is to maintain the status quo and take no action from a public policy level.

### ***Alternative One: Mandatory Vaccination of Adolescent Girls***

Epidemiologic and laboratory studies have demonstrated evidence that certain types of human papillomavirus (HPV) are the etiologic agents of cervical cancer. As such, it seems that administering a vaccine to those at greatest risk of the virus would decrease cases of cervical cancer. "Public health officials will need to make important decisions regarding who and when to vaccinate and what level of vaccine penetration is necessary to substantially reduce disease prevalence" (Taira et al., 2004, p. 1915). However, at greater issue is who to vaccinate, when to administer vaccinations, and at what cost to the public.

A 2004 Stanford School of Medicine study, based on clinical trials, measured and evaluated the effectiveness of vaccinating adolescent girls against HPV. The analysis was based on the 2004 population of 12-year-old girls, the age at which the vaccination would be first administered. The research indicated that vaccinated girls would experience a 61.8 percent overall reduction in acquiring cervical cancers over a lifetime. This produces a cost-effectiveness ratio of \$14,583 per quality-adjusted life year. The quality-adjusted life year was determined by taking the U.S. population of 12-year-old girls and decreasing that number by the number of cervical cancer cases estimated to be caused by HPV. This formula adds an average of 6.1 quality-adjusted days of life per woman and has a cost-effectiveness ratio of \$14,583 per quality-adjusted life-year gained compared to an environment in which no vaccine is utilized. Taira et al. concluded that "vaccinating women at the onset of sexual activity is cost-effective and will lead to the greatest reduction in cervical cancer incidence" (2004, p. 1920).

### ***Alternative Two: Mandatory Vaccination of Adolescent Girls and Boys***

Men act as "vectors" for infection of the virus (Taira et al., 2004, p. 1915). As such, an argument can be made that adolescent boys, along with girls, should be vaccinated against the virus. Including men and boys in mandatory vaccination would "enhance herd immunity and decrease overall incidence of cervical cancer" (Taira et al., 2004, p. 1915). The Centers for Disease Control and Prevention (CDC) report that studies are currently underway to determine if the HPV vaccine is effective in boys and men. While vaccinating males may have health benefits such as preventing genital warts and rare cancers, it is also possible that vaccinating boys and men may have indirect health benefits for girls and women. When these studies are more conclusive, the vaccine may be licensed

and recommended for adolescent males (Centers for Disease Control and Prevention, 2006).

While this may seem optimal from a public health standpoint, it is necessary to investigate the benefit and cost-effectiveness of adopting a vaccination policy for both sexes. The Stanford study found that expanding the vaccination program to men and boys would further reduce the total number of cervical cancer cases by only 2.2 percent. The cost-effectiveness ratio is \$442,039 per quality-adjusted life year when compared to the female-only strategy (Taira et al., 2004).

***Alternative Three: Mandatory School Vaccination with Opt-Out Option***

As previously mentioned, many states have proposed legislation that would require adolescent girls to receive the HPV vaccination or allow parents to opt-out. To opt-out, parents sign documentation indicating that they are aware of the risk of not vaccinating their daughters, and choose not to. This strategy has been presented in at least 20 state legislatures. Virginia, the only state that mandates girls be vaccinated, allows for a parental exemption (National Conference of State Legislatures, 2007). This encourages an indirect education campaign, as parents must become aware of and gain an understanding of HPV and the vaccination when deciding what they feel is best for their daughters.

***Alternative Four: Increased Public Education***

Awareness of HPV and the HPV vaccine are important components to any outreach and prevention alternative. Some states have utilized public education and awareness campaigns of HPV, and even more states have proposed educational elements as part of their vaccination efforts. "Accurate and reliable health information is needed to inform the public, particularly women and parents of vaccine-eligible girls, about HPV so they can make informed decisions about HPV vaccination, managing HPV-associated risk, interpreting cervical cancer screening results, and managing and treating HPV sequelae" (Friedman & Shepard, 2007, p. 473). To effectively reach the public and affect their behavior, it must be relevant and meaningful. In addition, communications must be based on an in-depth understanding of the target audience's current knowledge, attitudes, perceptions, and beliefs (Friedman et al., 2007).

When educating the public about HPV and the HPV vaccine, it is necessary to be aware that miscommunication can produce anxiety and fear. This may be particularly harmful in linking HPV and cervical cancer. Although this may be a great motivator in encouraging the public to learn more about the virus, it may also cause fear. Care must be taken not to inadvertently cause undue public alarm through the promotion of HPV awareness. "The public-health community has an obligation to empower the public with complete information about HPV that will enable them to

decipher the truths from the misinformation that may inadvertently be conveyed to them by the media, special interest groups, and health and medical professionals" (Friedman et al., 2007, p. 482-483). The effectiveness of public awareness campaigns and the public's attitude toward HPV depend on how the issue is presented. HPV could potentially be framed as a STD, as a cause of cervical cancer, or as a universal public health issue. Focusing on the sexually transmitted nature of HPV can become stigmatizing and detract from the more important public health concern of cervical cancer. Experts suggest that HPV communications take a public-health approach that emphasizes the "high prevalence and commonality of HPV infection among sexually active adults" (Friedman et al., 2007, p. 483).

Medical professionals often serve as the primary source of HPV information. Mandating vaccination by the schools is the leading reason parents have their daughters vaccinated. However, the second most predominant influence for vaccination is doctors (Davis et al., 2004). As such, in developing HPV education materials for the general public, simultaneous development of materials for health care providers should occur (Friedman et al., 2007).

***Alternative Five: No Action***

Taking no action would maintain the current status quo. Currently in Arizona adolescent girls are receiving the HPV vaccine but it is not a mandatory vaccination for school entry. Arizona health officials hope that physicians will begin to include the HPV vaccine in the routine vaccinations given to girls prior to school entry. If the HPV vaccine is incorporated into this routine standard of care, it may facilitate an eventual move toward mandatory vaccination (Dr. Kathy Fredrickson, personal communication, October 4, 2007).

## Evaluation Criteria

In evaluating the five approaches to addressing the spread of HPV, there are four crucial measurements to consider. The evaluation criteria include effectiveness, cost, administrative feasibility, and political feasibility. Effectiveness is measured by the percentage of HPV cases that could be prevented. Cost effectiveness evaluates the expenses associated with HPV vaccines. Administrative feasibility outlines the practicality of the alternative. Political feasibility indicates whether the proposed measure would be realistic given the political environment. Each measurement will be weighted the same, as each represent a crucial component in creating policy. By giving each criteria equal weight, the intention is to provide consistency throughout the analysis.

***Effectiveness***

Effectiveness in reducing the cases of HPV can be measured by the percentage of adolescents that are protected

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from the virus. In vaccinating all girls, as would be the case in Alternative One, experts predict a 90 percent chance that the recipient of the vaccine would not acquire HPV (Goldie, Kohli, Grima, Weinstein, Wright, Bosch & Franco, 2004). Evidence shows that school-based laws prove to be an effective method of boosting vaccine-coverage rates. By mandating HPV vaccination, more widespread protection against the disease can be achieved than through persuasion and education (Colgrove, 2006). Additionally, by mandating the HPV vaccine, it is possible to achieve a 90 percent compliance rate which is considered herd immunity (Dr. Kathy Fredrickson, personal communication, October 4, 2007).

Mandating HPV vaccination of adolescent boys and girls, as prescribed in Alternative Two, may prove to be slightly more effective than vaccinating girls alone. This approach capitalizes on the herd immunity concept as it vaccinates all individuals who may be carriers of the virus.

Alternative Three, mandatory school vaccination with an opt-out option for parents, would be slightly less effective than the first two alternatives, as it would potentially allow for a smaller percentage of the population to receive the HPV vaccines. Alternative Four, increased public education, would be less effective than Alternatives One, Two, and Three, but more effective than Alternative Five, which is to do nothing. Alternative Five, which entails maintaining the status quo, is the least effective approach in decreasing the number of cervical cancer cases as caused through the spread of HPV. Currently, without a mandate, it is possible to achieve only a 60 to 70 percent compliance rate of vaccination (Dr. Kathy Fredrickson, personal communication, October 4, 2007).

### **Cost**

Vaccination against HPV can be costly. HPV vaccinations are typically administered by a series of three injections to adolescents. This is followed up with a booster shot to individuals in their early twenties. It is estimated that the lifetime total medical cost of HPV infection for men and women between the ages of 15 and 24 is \$2.9 billion. This makes HPV the second most expensive sexually transmitted infection, following HIV. Reducing the chances of acquiring HPV reduces the health care costs associated with HPV-associated diseases (Soper, 2006). In Arizona, the cost of the HPV vaccine is one of the most expensive pediatric vaccines. Many suspect this is because there is currently only one licensed vaccine available, Gardasil, by Merck. However, when more HPV vaccines become available and licensed for use, the costs will decrease (Dr. Kathy Fredrickson, personal communication, October 4, 2007). GlaxoSmithKline has developed a vaccine, Cervarix, which has yet to be licensed for use in the United States.

The first alternative, mandatory vaccination of adolescent girls, requires that all girls receive the vaccination. Research indicates that the use of the HPV vaccine in girls would be cost-effective. Dollars per quality-adjusted life-year are almost equivalent to that of other childhood vaccines. Vaccinating 12-year-old girls would cost approximately \$24,300 per quality adjusted life-year (Middleman, 2006).

Alternative Two, mandatory vaccination of adolescent girls and boys, would require all adolescents receive the HPV vaccine. In 2004, it would have cost more than \$300 million annually to vaccinate 50 to 70 percent of the United States population of 12-year-old boys. This assumes a vaccination of \$300 and a population of 2.1 million 12-year-old boys. Studies indicate that including boys in mandatory vaccinations is not cost-effective compared to a female-only vaccination (Taira et al., 2004).

Alternative Three, mandatory school vaccination with an opt-out option, would cost slightly less because less of the population would be vaccinated. Alternative Four, increased public education, would vary based on the degree to which a public education campaign was employed. The last alternative, taking no action, would present neither parents nor government programs with no additional costs to what currently exists.

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*"Although mandatory vaccination of adolescent girls is effective in reducing the prevalence of HPV and the number of cervical cancer cases, and it approaches herd immunity, the political constraints are severe."*

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### **Administrative Feasibility**

Alternative One would require increased participation of school administrators and parents. School administrators would ensure that adolescent girls have documented proof that they received the vaccine prior to the beginning of the school year. State and county health departments would be responsible for maintaining immunization records which may require a slight increase in staffing. Alternative Two would have similar requirements but possibly require more public health and school administration personnel. Alternative Three would require additional administrative record keeping since exemptions for those children who opt-out of vaccines must be kept on-file at schools (Dr. Kathy Fredrickson, personal communication, October 4, 2007).

The administrative impact from Alternative Four would depend on the organization or government agency conducting the education and outreach. HPV education and outreach can be conducted by non-profit organizations, state, county, and tribal health departments, schools, and universities. If public education and outreach were increased, this may require the use of outside public relations firms and consultants. Coordination for this may involve increased staffing at these institutions.

There is no administrative impact for Alternative Five beyond what already exists. This includes routine record-keeping through the Arizona State Immunization Information Service (ASIIS) system for those girls who are currently

receiving the vaccine, education and outreach efforts conducted by ADHS, ordering the vaccine, and managing the vaccine delivery process.

### **Political Feasibility**

Alternative One, mandatory vaccination of girls, would likely stir up political resistance amongst groups such as Focus on the Family, the faith-based community, and conservative political leaders. As previously mentioned, these groups may assume that vaccinating against a sexually transmitted disease increases the chances of premarital sex. Alternative Two, mandatory vaccination of boys and girls, would likely elicit a similar reaction. It is possible that Alternative Three, manda-

tory vaccination of girls with an opt-out option for parents, would face some political resistance, but likely slightly less than Alternatives One and Two.

Alternative Four, increased public education, may incur some backlash from the aforementioned groups, but not as much as the first three alternatives. Alternative Five, which calls for no policy changes, would likely produce the least amount of political resistance.

The alternatives were ranked from one to five (one indicating the highest ranking criteria; five being the least). The variance of all measurements is illustrated in Table 2.

**Table 2.** Matrix of Alternatives and Criteria

	Effectiveness	Cost	Administrative Feasibility	Political Feasibility	Total
<b>Alternative 1: Mandatory Vaccination of Adolescent Girls</b>	2	1	2	4	9
<b>Alternative 2: Mandatory Vaccination of Adolescent Girls and Boys</b>	1	5	3	5	14
<b>Alternative 3: Mandatory Vaccination of Girls with Opt-Out</b>	3	2	4	3	12
<b>Alternative 4: Increased Public Education</b>	4	4	5	2	15
<b>Alternative 5: No Action</b>	5	3	1	1	10

## Discussion of Chosen Alternative

Alternative One is the chosen alternative as it aligned most closely with the evaluation criteria among the other alternatives. Although mandatory vaccination of adolescent girls is effective in reducing the prevalence of HPV and the number of cervical cancer cases, and it approaches herd immunity, the political constraints are severe. As stated earlier, there are many groups, including parents, who oppose mandatory vaccination without the option to opt-out. If Alternative One was implemented, state and local health officials and other medical and health care related organizations would spend time and money convincing these groups that this strategy is optimal. Cost effectiveness would then need to be readjusted to include lost opportunity cost on handling other public health issues and administrative and transactional costs.

There are other policy implications pertaining to mandatory HPV vaccination for girls that should not be ignored. The pervasiveness of the HPV vaccine should not overshadow the importance of the Pap test as a screening tool. If Alternative One was implemented, the Pap test and other health screenings would still need to take place because the vaccine does not guard against all strains of HPV. Health screenings are so important that researchers have recently found that the HPV test is more effective at detecting cervical cancer than the Pap test (Emery, 2007). According to Emery,

“The test for the human papillomavirus, or HPV, found 95 percent of cases in which women had potentially precancerous changes in the cervix. This compared to 55 percent of Pap smears” (2007, p. 1). While this remains to be seen, doctors and researchers are suggesting that health professionals use the HPV test as a screening tool instead of the Pap test.

## Conclusion

It is evident that HPV and cervical cancer present a hotly contested issue and will remain an important public health issue for years to come. Although Arizona is still at the early stages of moving toward mandatory vaccination, policy initiatives at the national and state levels have set the stage for future discussions about mandates, increased education and outreach, funding, cost and pricing competition, and efficacy considerations. Although it may not occur for some time, there is hope that Arizona’s political and social climate will eventually support helping to eliminate this deadly disease.



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## Appendix A

Table 3. Legislative Activity by State

State	Bill	Legislation	Result
Arizona	S.B. 1385	Would allocate \$2.6 million from the 2007-2008 to pay for HPV vaccination for women 21 to 26 years of age. A federal matching fund of \$5.6 million is reported.	Referred to Rules and Appropriations (2/1/07)
	S.B. 1437	Would appropriate \$200,000 for outreach and education on numerous vaccines, including the HPV vaccine.	Referred to Rules and Appropriations (2/1/07)
	S.B. 1502	Would require insurance providers to cover the cost of the HPV vaccine.	Held in Rules, Health and Financial Institutions Insurance and Retirement Committees (1/30/02)
	S.B. 1093	Would prohibit the health department from requiring the HPV vaccine. The health department still has authority on all other vaccine requirements.	Held in House
	H.B. 2086	Would require insurance coverage of the HPV vaccine and cervical cancer screenings.	Held in Rules Committee
Arkansas	S.B. 954	Would require the Department of Health and Human Services to provide HPV vaccinations to every girl 12 years and older.	Withdrawn 3/27/07; Session ended
California	A.B. 16	Would require all girls entering sixth grade to be vaccinated with the HPV Vaccine.	Withdrawn for further consideration.
	A.B. 1429	Would expand any insurance plan that covers cervical cancer screening or surgery to also cover the HPV vaccine with a referral from the healthcare provider.	Passed Assembly, to Senate.
Colorado	S.B. 80	Would require information be given to parents about the HPV vaccine and require the vaccine be given to girls before the age of 12 in order to attend school. Allows exemption if parent or guardian objects. Also requires the Executive Director of the Department of Public Health and Environment to decide the content of information given to parents.	Senate Committee on Appropriations Postpone Indefinitely (4/5/07)
	H.B. 1016	Would request a Medicaid waiver from the federal government to provide the HPV vaccine for girls 12 to 18 with parental consent.	House Committee on Health and Human Services Postpone Indefinitely (2/26/07)
	Co. Chapter No. 41 (2007) (S.B. 97)	Allocates four percent of state tobacco settlement money to the cervical cancer immunization fund.	Signed into Law
	Co. Chapter 212 (2007) (H.B. 1992)	Includes information on HPV, the link to cervical cancer and the vaccine in sexual education in schools.	Signed into Law
	Co. Chapter No. 318 (2007) (H.B. 1301)	Creates the cervical cancer immunization program. Encourages use of the HPV vaccine and adds it to the list of Medicaid benefits. Also requires certain health insurance providers to cover the cost of the vaccine. Appropriates funds for the program.	Signed into Law
Connecticut	S.B. 86	Would require the Department of Health to develop standards for giving the vaccine.	
	H.B. 5485	Would provide coverage of the HPV vaccine through the state's insurance plan (HUSKY).	Senate Committee on Appropriations (3/23/07)
	H.B. 6085	Would create an awareness campaign on cervical cancer and HPV.	Referred to Joint Committee on Public Health (1/18/07)
	H.B. 6977	Would require the first dose of the HPV vaccine for girls before entering sixth grade.	
	B. 17-0030	Would mandate the HPV vaccine for girls before the age of 13 and gives parents the right to opt out their daughter.	Passed by City Council, needs Congressional approval
District of Columbia	S.B. 86	Would allow the Board of Medicine and Board of Osteopathic Medicine to establish guidelines concerning information given to parents on HPV and also requires insurance policies to cover the HPV vaccine.	Withdrawn 1/23/07

**Table 3.** Legislative Activity by State (Continued)

State	Bill	Legislation	Result
Florida	S.B. 660	Would prohibit certain students from entering school without the HPV vaccine and would require public and private schools to provide information on HPV and the HPV vaccine to parents of certain children. (H.B. 561 is identical)	Died in Committee on Education Pre-k-12 Appropriations (5/4/07)
Georgia	H.B. 11	Would mandate insurance coverage for the vaccine.	House Prefiled (11/29/06)
	S.B. 155	Would require the HPV vaccine for sixth grade girls unless parents provide a written statement that they cannot afford the vaccine.	Senate Second Read (3/1/07); Session ended
Hawaii	H.B. 590	Would require health insurance providers to cover the HPV vaccine and adds the vaccine to the teen vax program. This would allow the Department of Health to decide if the vaccine should be a school requirement.	Carried over (8/27/07)
	H.B. 1000	Would add the HPV vaccine to the teen vax program.	Carried over (8/27/07)
	H.R. 116	Would add the HPV vaccine to the teen vax program and urge insurance providers to cover the cost of the HPV vaccine for females ages 11 to 26. (Companion: H.C.R. 147)	In Committee (4/3/07)
Illinois	H.B. 115	Would create an awareness campaign on HPV and cervical cancer; provide parents with information; and require the HPV vaccine for girls entering sixth grade unless their parents choose to exempt them.	Rules Committee (5/25/07)
	S.B. 10	Would require the HPV vaccine for girls ages 11-12, but allows parent to opt-out. Also requires the school to track the number of immunized children attending the school.	Placed on the Calendar for the Third Reading (3/2/07)
	H.B. 2003	Would require the Department of Health to provide and promote information on the HPV vaccine.	Rules Committee (5/16/07)
	Public Act 095-0422 (2007) (S.B. 937)	Requires insurance companies to provide coverage for the HPV vaccine. It also requires the department of health to cover girls under 18 that are not covered by a provider. The department shall develop standards. Effective August 24, 2007.	Signed into Law.
Indiana	Public Law No. 80 (2007) (S.B. 0327)	Requires the parents of girls entering the sixth grade to receive information about the link between HPV and cervical cancer and the availability of an HPV vaccine. Parents of sixth graders must sign a statement notifying the school of their decision to vaccinate or not vaccinate their child. The school must provide the information to the state Health Department. This bill does not mandate the vaccine for school attendance. Effective July 1, 2007.	Signed into Law.
Iowa	S.F. 43	Would include HPV as a sexually transmitted disease, its link to cervical cancer and availability of the HPV vaccine in human sexuality education in schools. (Companion H.B. 87)	Education Subcommittee (1/25/07)
	H.F. 661	Would require insurance providers to cover the cost of the HPV vaccine for females nine to 26 years of age.	Human Resources Subcommittee (3/13/07)
	S.F. 326	Makes an appropriation to the Department of Health to provide HPV vaccinations to uninsured females between the ages of 19 and 26 with incomes below 250 percent of federal poverty guidelines at no charge. Also funds a public awareness campaign about HPV and cervical cancer, including identifying medically accurate information, making that information available on the Department's Web site, notifying school districts of the information, and educating the public and health professionals.	Appropriations Subcommittee (3/14/07)
	S.F. 514	Would require insurance providers offering certain plans to cover the cost of the HPV vaccine.	Referred to Commerce Committee (4/26/07)
	H.F. 789	Would require insurers offering certain health insurance contracts to provide coverage for the HPV vaccine.	Referred to Commerce Committee (4/28/07)
	H.F. 611	Requires that educational content for the seventh grade also include information on HPV and the availability of the HPV vaccine. Effective July 1, 2007.	Signed into Law.
Kansas	H.B. 2227	Would require vaccination against HPV for girls before entering sixth grade. Also requires that parents receive information on the link between HPV and cervical cancer before the vaccination of their child.	Scheduled Hearing (2/7/07)

**Table 3.** Legislative Activity by State (Continued)

State	Bill	Legislation	Result
Kentucky	H.B. 143	Would require all girls entering middle school to be vaccinated against HPV.	Referred to House Committee on Health and Welfare (1/3/07)
	H.B. 345	Would require the HPV vaccine for girls entering middle school, but allows parents the right to exempt their child for any reason.	Referred to Senate Committee on Appropriations and Revenue (3/1/07)
	H.B. 327	Would appropriate \$4,116,000 from the general fund to provide the HPV vaccine on a voluntary basis to uninsured females ages nine to 26.	House Floor Amendments Filed (3/8/07)
Maine	Maine Chapter No. 73 (2007) (L.D. 137)	Establishes financial coverage for the HPV vaccine through the MaineCare program and improve public awareness of the vaccine.	Signed into Law
Maryland	S.B. 54	Would require all girls entering sixth grade to be vaccinated against cervical cancer starting in 2008.	Withdrawn
	Md. Chapter No. 191 (2007) (H.B. 1049)	Establish a task force for the HPV vaccine. Duties would be to make recommendations for a state plan for the vaccine including possible requirements, cost and education efforts. (Crossfiled with SB 774). Effective July 1, 2007.	Signed into Law
	Md. Chapter No. 190 (2007) (S.B. 774)	Establishes the HPV subcommittee in the Cervical Cancer of the Maryland Comprehensive Cancer Control Plan. Effective July 1, 2007).	Signed into Law
Massachusetts	Docket #604	Would require all girls entering sixth grade to receive the HPV vaccine. Allows parents to opt-out of the requirement if the vaccine contradicts religious beliefs. Promises state financing of the vaccine for any girl in a family with income below 300 percent of federal poverty guidelines.	
	S.B. 102	Would require sixth grade girls to be vaccinated against HPV before entering school. Allows medical exemptions. Also provides universal coverage of the vaccine.	Public Hearing (7/11/07)
Michigan	H.B. 4164	Would require the HPV vaccine. Provides information to parents and allows exemptions.	Referred to Committee on Commerce (1/30/07)
	H.B. 4104	Would require the HPV vaccine for girls entering sixth grade. Allows exemptions.	Referred to Committee on Health Policy (1/23/07)
	S.B. 133	Would require parents to receive information on the HPV vaccine and sign a form saying their child has had the vaccine for entry into sixth grade, or that the parent has opted their child out of the vaccine.	Referred to Committee on Health Policy (1/31/07)
	S.B. 132	Would require the HPV vaccine for girls entering sixth grade, requires parents receive information on the vaccine and allows exemptions.	Referred to Committee on Health Policy (1/31/07)
	S.B. 415	Would require the department of health to distribute information about the HPV vaccine to schools in the state and encourage the schools to share the information with parents.	Referred to Committee on Health Policy (5/29/07)
	S.B. 416	Would require schools that distribute information to parents on any immunization to students in the sixth grade to also include information on the HPV vaccine.	Referred to Committee on Health Policy (5/29/07)
Missouri	H.B. 802	Mandates that girls entering the sixth grade prove that they have had the HPV vaccine or begun the immunization series (with intent to complete the 3-dose vaccination). Allows parents to decline the vaccine for their daughters on medical or religious grounds, but they must sign an informed consent and receive information on the relationship between HPV and cervical cancer.	Laid Over (5/7/07)
	S.B. 514	Would provide parents with information on HPV, cervical cancer and the HPV vaccine. Would require all sixth grade girls to be vaccinated against HPV. Allows religious and medical exemptions.	Senate Committee on Seniors, Families and Public Health (4/17/07)
Minnesota	S.F. 243	Would require the HPV vaccine for girls entering school at the age of 12. Provides parents with information and allows exemptions. (Companion: H.B. 530)	Referred to Health, Housing and Family Security (1/25/07)

**Table 3.** Legislative Activity by State (Continued)

State	Bill	Legislation	Result
	2007 MN Laws, Chapter 147 (H.F. 1078)	Reconvenes the cervical cancer elimination study with assistance from the Minnesota advisory committee on immunization practices. The study will be on the risks, benefits, availability, efficacy and coverage of the HPV vaccine. (Part of a health and human services finance bill).	Signed into Law.
Mississippi	H.B. 895	Would require all girls entering sixth grade to be vaccinated against HPV. Also relates to financing and Medicaid coverage of the vaccine.	Died in Committee of Public Health and Human Services; Appropriations (1/30/07)
Nebraska	L.R. 170	Would create an interim study of the HPV vaccine, studying the efficacy, funding and population served by the vaccine.	Referred to Health and Human Services Committee (5/18/07)
Nevada	Nev. Chapter No. 527 (2007) (S.B. 409)	Requires insurance companies to cover the cost of the HPV vaccine for policyholders and their dependents without prior authorization. Effective July 1, 2007.	Signed into Law
New Jersey	New Jersey Chapter No. 134 (2007) (S. 2286)	Requires distributing information about HPV to parents and guardians and requires vaccination of seventh to 12th graders. Also proposes a public awareness campaign. Effective immediately.	Signed into Law (Identical Bill: A.B. 3920)
	S. 2284	Would mandate insurance and state health program coverage of the HPV vaccine.	Reviewed by the Pension and Health Benefits Commission Recommend to not enact (1/19/2007)
	A. 4050	Would mandate insurance and state health program coverage of the HPV vaccine.	Reviewed by the Pension and Health Benefits Commission Recommend to not enact (6/8/2007)
New Mexico	NM Chapter No. 278 (2007) (S.B. 407)	Requires insurance plans in the state to cover the FDA-approved HPV vaccine for girls age 9 to 14. Existing deductibles and coinsurance may apply.	Signed into Law
	H.J.M. 39	Will create the human papillomavirus- papanicolaou advisory panel to study cervical cancer disparities and find cost-effective strategies for primary and secondary cervical cancer interventions, including the HPV vaccine.	Adopted
	H.B. 965	Would allocate funds from an increased cigarette tax to the department of health to increase cervical cancer vaccination outreach.	House taxation and Revenue Committee
	S.B. 1174	Would require the HPV vaccine for girls between nine and 14 years of age. Allows parents to elect not to have their child vaccinated. Also provides information to parents.	Vetoed
New York	A.B. 2856	Would include information on the HPV vaccine and its relation to cervical cancer in sexual education. (Companion S.B. 1342)	Referred to Health (3/27/07)
	S.B. 4172	Would require insurance providers that cover cervical cancer detection to also cover the HPV vaccine for females 9 to 26 years of age.	Referred to Insurance (3/29/07)
	A.B. 7403	Would encourage parents to voluntarily vaccinate their daughters against HPV through educational materials.	Referred to Health (4/13/07)
	S.B. 4394	Would require the HPV vaccine for females born after January 1, 1996 unless the parent or guardian withholds consent for the vaccination.	Referred to Health (4/13/07)
	A.B. 8536	Would include the HPV vaccine in any insurance plan that covers well-child visits (Companion: S.B.5629).	Referred to Insurance (5/18/07)
	A.B. 5810	Would require the HPV vaccine, allows religious exemptions.	Referred to Health (2/23/07)
	A.B. 6296	Would add the HPV vaccine to insurance coverage of well child visits.	Referred to Insurance (3/6/07)
	NY Chapter No. 54 (2007) (A.B. 4304)	Budget bill that allocates five million dollars to promote the HPV vaccine. (Identical: S.B.2104) Effective immediately.	Signed into Law
North Carolina	NC Session Law 2007-59 (S.B. 260)	Requires the department of health to distribute information on the HPV and the vaccine through schools to all parents of children in grades five through 12. Effective July 1, 2007. (Companion: H.B.938)	Signed into Law

Table 3. Legislative Activity by State (Continued)

State	Bill	Legislation	Result
North Dakota	North Dakota Chapter No. 232 (2007) (H.B. 1471)	Provides funding for distribution of educational materials on HPV and the HPV vaccine. Effective July 1, 2007.	Signed into Law
Ohio	H.B. 81	Requires all female students entering the sixth grade to receive the HPV vaccine. The student may not attend school for more than 14 days without providing documentation that they have received the vaccine or are in the process of receiving it. Allows parents to opt out after they are given information on the link between HPV and cervical cancer. Also creates an HPV Immunization Advisory Committee within the Department of Health.	Referred to Health Committee (2/28/07)
Oklahoma	S.B. 487	Would require the HPV vaccine for all girls before entering the sixth grade.	Referred to Rules (2/8/07)
Oregon	H.B. 3253	Would require health benefit plans to cover the HPV vaccine for girls 11 years and older.	Referred to the Human Services and Women's Wellness.
Pennsylvania	H.B. 352	Would amend the Insurance Company Act of 1921 to require insurance providers to cover the cost of the HPV vaccine.	Referred to Insurance (2/9/07)
	H.R. 21	Would create a cervical cancer awareness week to promote awareness of cervical cancer's relation to HPV and the availability of the HPV vaccine.	Referred to Judiciary (1/30/07)
	H.R. 42	Would designate January as cervical cancer awareness month and includes the HPV vaccine in the campaign.	Referred to Local Government (1/30/07)
	H.B. 845	Known as the HPV and Cervical Cancer Education, Immunization and Prevention Act, this instructs the Department of Health to make educational materials available about the link between HPV and cervical cancer, the value of prevention, early detection and diagnosis and treatment of both HPV and cervical cancer. The information must be available in schools, on the Department of Health's Web site, and through health care providers. Also permits the Department of Health to accept grants from both government and non-government organizations to make these materials available to the public. Includes an insurance mandate that plans cover the cost of the vaccine and requires parental consent for women under 18 to receive the vaccine.	Referred to Health and Human Services (3/19/07)
Rhode Island	H.B. 5061	Would require providers to cover the cost of the HPV vaccine.	Signed into Law
South Carolina	H.B. 3136	Would enact the "Cervical Cancer Prevention Act" to require the HPV vaccine for girls before entering sixth grade or after their 11th birthday. Allows for religious exemptions.	Tabled (4/18/07)
South Dakota	H.B. 1061	Gives the Department of Health \$9.2 million to offer the HPV vaccine to young women age 11 to 18.	Signed into Law
Tennessee	H.B. 1517	Would require the department of health to report on the populations by age affected by HPV and report to the legislature with a recommendation concerning the HPV vaccine. (Companion: S.B.1995)	Referred to Public Health and Family (2/27/07)
Texas	S.B. 110	S.B. 110 Would provide information for parents and guardians on HPV and requires the HPV vaccine for girls entering the sixth grade. (Companion: H.B.215)	Referred to Public Health (4/25/07)
	H.B. 146	Would require the Department of Health to educate the public about HPV and cervical cancer and promote immunization against HPV.	Referred to Public Health (1/30/07)
	H.B. 1098	Will prohibit any elementary or secondary school requirement for the HPV vaccine. Mandates that schools distribute medically accurate, scientific, unbiased, and peer reviewed information about the vaccine to parents or legal guardians at the appropriate time in the immunization schedule. Overrides Executive Order 4 to mandate the vaccine. Effective Immediately.	(S.B. 438 is identical. H.B.1115 is duplicate)
	H.B. 2609	Would not allow the governor to require the HPV vaccine in elementary or secondary school.	Referred to Public Health (3/13/07)

**Table 3.** Legislative Activity by State (Continued)

State	Bill	Legislation	Result
	H.B. 1215	Would prohibit the HPV vaccine from being added to the immunization schedule and does not allow the executive commissioner of the Health and Human Services Commission to require the vaccine for school entry.	Referred to Public Health (2/13/07)
	S.B. 815	Would require health benefit plans to cover the cost of the HPV vaccine.	Referred to s/c by Chair (4/2/07)
	H.B. 1379	Requires the Department of Health to develop and distribute educational materials to the public in both English and Spanish. Includes a number of statements that must be included in the materials. Effective September 1, 2007.	Signed into Law
	Executive Order 4	Signed by Governor Rick Perry February 2, 2007 - Mandates that all females entering the sixth grade must receive the HPV vaccine. Orders the Vaccines for Children program to make the vaccine available to eligible children up to age 18 and the state Medicaid program to finance the vaccine for eligible females age 19-21. Allows parents to refuse the vaccine for their daughters.	Signed into Law- Overridden by H.B.1098
Utah	H.B. 358	Establishes an awareness campaign on the causes, prevention, and risks of cervical cancer.	Signed into Law
Vermont	H.B. 256	Requires all females entering sixth grade to receive the HPV vaccine. Allows exemptions for medical, moral or religious beliefs. If the parent refuses the HPV vaccine, they must sign a "refusal to vaccinate" statement that they understand the link between HPV and cervical cancer. Appropriates nearly \$8 million dollars to the health department to pay for and administrate the vaccine to all 11-year-old girls and 25 percent of the population age 10, or 12-26.	Referred to Human Services (2/8/07)
	S.B. 139	Would require all girls to be vaccinated against HPV before entering sixth grade. Allows exemptions for medical, moral or religious beliefs. If the parent refuses the HPV vaccine, they must sign a "refusal to vaccinate" statement that they understand the link between HPV and cervical cancer. Appropriates nearly \$8 million dollars to the health department to pay for and administrate the vaccine to all 11-year-old girls and 25 percent of the population age 10, or 12-26.	Referred to Health and Welfare (2/27/07)
Virginia	Va. Chapter No. 922 (2007) (S.B. 1230)	Requires the HPV vaccine for girls entering sixth grade. Effective October 1, 2008.	Signed into Law
	Va. Chapter No. 858 (2007) (H.B. 2035)	Requires the HPV vaccine for girls on or after their 11th birthday and allows parents to exempt their child. Effective October 1, 2008. (Identical to above, S.B.1230)	Signed into Law
	H.B. 1914	Would add the HPV Vaccine to the required vaccination schedule for girls, 11 years of age.	Incorporated by Health, Welfare and Institutions H.B.2035 (1/23/07)
	H.B. 2877	Would require insurance coverage of the HPV vaccine.	Tabled in Commerce and Labor (1/23/07)
Washington	Wash. Chapter No. 276 (2007) (H.B. 1802)	Provides every parent of sixth grade girls with information on HPV and where they can get the vaccine. Does not require the vaccine. Effective July 22, 2007.	Signed into Law
West Virginia	H.B. 2835	Would require the HPV vaccine for girls entering sixth grade. Allows medical exemptions.	Referred to House and Human Resources (2/5/07)

Source: National Conference of State Legislatures, 2007