Targeting Teens and Adolescents for HPV Vaccine Could Draw Fire

Months before a manufacturer of the human papillomavirus (HPV) vaccine applies for a biologics licensing agreement from the U.S. Food and Drug Administration to sell the vaccine, public health leaders are brainstorming ways to overcome the possible resistance to the promising defense against cervical cancer.

Opposition centers on the recommendation from researchers that the vaccine be given to children between the ages of 9 and 12. Critics contend that a vaccine against a sexually transmitted virus will encourage teen promiscuity.

“We’re against vaccinating children [for HPV],” said Kristi Hayes, director of government relations for the Abstinence Clearinghouse. The nonprofit organization promotes premarital abstinence and monogamous marriage as the only means of preventing sexually transmitted diseases (STDs). “We don’t know what this will do to children psychologically,” Hayes said.

Waiting until adulthood, though, would limit the vaccine’s ability to prevent cervical cancer. Most women become infected with HPV soon after becoming sexually active.

Laura Koutsky, Ph.D., an epidemiologist at the University of Washington in Seattle followed 300 18- to 20-year-old students for 5 years, all of whom initially tested negative for HPV. Five years later, more than 60% had been infected.

“Ideally, a vaccine should be given between 9 and 13, before kids initiate sexual activity,” Koutsky said.

Another reason for targeting preteens is that they are more likely than teenagers to visit physicians. Vaccine patients get three doses, each 2 months apart.

A study that Merck & Co. presented in May at the annual meeting of the European Society of Pediatric Infectious Diseases in Valencia, Spain, suggests yet another advantage to vaccinating adolescents. Researchers found that boys and girls ages 10–15 had a substantially stronger immune response to the HPV vaccine than 16- to 23-year-olds.

Clinical trials for two similar HPV vaccines have been very promising. Efficacy is close to 95%, according to Doug Lowy, M.D., chief of cellular oncology lab at the National Cancer Institute. Both vaccines prevent infections with HPV 16 and 18, which are linked to 70% of cervical cancers. The genotypes are among some 40 that infect the genital tract. Most cause no symptoms and clear up without treatment as people develop immunity. About 15 genotypes are considered carcinogenic.

Because the vaccines provide immunity against only the two HPV types that cause the most cancer, vaccinated women would be advised to continue getting Pap smears to detect precancerous lesions. Early immunization and Pap smears every 3 years starting at age 25 would reduce a woman’s lifetime risk of cervical cancer by 94%, according to a computer-based model created by Sue Goldie, M.D., of the Harvard School of Public Health in Boston (see article, Vol. 96, No. 8, p. 604).

Males have been included in clinical trials only recently. Vaccination is

Two HPV Vaccines Yielding Similar Success

New Jersey-based Merck & Co., and GlaxoSmithKline (GSK), based in England, are in the final phase of clinical trials of their vaccines against human papillomavirus (HPV) types 16 and 18, which are associated with 70% of all cases of cervical cancer.

Merck’s Gardasil vaccine also provides immunity against HPV 6 and 11, which cause 90% of all cases of genital warts, whereas GSK’s Cervarix vaccine provides immunity against only HPV 16 and 18.

Earlier trials of both vaccines have been promising. Randomized, double-blind, placebo-controlled studies involving more than 2,200 young women at several sites have shown both vaccines to be at least 90% effective in protecting against infection with the targeted viruses. Preliminary data suggest that immunized young women followed for more than 2 years showed no evidence of precancerous lesions caused by these HPV types, whereas women in the placebo groups did develop lesions. Merck published the results of its phase II clinical trials in 2002 and 2005, and GSK’s results were published in 2004.

Merck’s phase III trial involves more than 20,000 women at more than 100 sites worldwide and is expected to provide results later this year. GSK enrolled about 30,000 women in its phase III trial. Both companies are also testing the vaccines on men and adolescent boys and girls. In tests in adolescents, researchers are analyzing only the vaccine’s safety and the subjects’ immune response, not cervical changes associated with HPV infection.

The National Cancer Institute is conducting a long-term, independent trial in 9,000 women in Costa Rica using GSK’s vaccine. NCI researchers are using the trial to help develop second-generation HPV vaccines. Future vaccines are expected to target additional carcinogenic HPV types.

—Cynthia Washam
expected to protect them from penile and anal cancers caused by HPV 16 and 18, as well as protect their female partners from cervical cancer.

Merck & Co., based in Whitehouse Station, N.J., expects to apply for FDA approval of its Gardasil vaccine before the end of the year and begin marketing it late in 2006. England-based GlaxoSmithKline plans to seek FDA approval for its Cervarix vaccine within 2 years. (See sidebar, p. 1030.)

To eradicate HPV 16 and 18, at least 90% of the population would have to be vaccinated, according to Eliav Barr, M.D., head of Merck’s HPV vaccine program. The virus would not be able to perpetuate itself with so few susceptible people. That would demand the support of both parents and providers. Some studies suggest that such programs may not have the public support they need. A survey conducted by researchers from the Medical College of Georgia, in Augusta, and published in the July 2004 issue of the Journal of Lower Genital Tract Disease found that 23% of parents of 10- to 15-year-olds surveyed did not want their children vaccinated. Another 22% were undecided. Two studies published in 2004 revealed that both gynecologists and nurse practitioners were more willing to immunize adults and older teens than young adolescents.

Yet studies also show that people can be swayed. One study found that after reading a one-page information sheet about HPV, 20% of the parents who initially opposed the vaccine said they wanted it for their children. Sixty-five percent of the undecided parents said they would have their children vaccinated. Gynecologists and nurse practitioners said they would follow the recommendations of their professional associations.

“The trick with vaccines is getting recommendations from professional organizations and getting the information out there to physicians, selling them on the idea that the disease is important,” said Susan Rosenthal, Ph.D., a pediatric psychologist at the University of Texas Medical Branch in Galveston who has conducted surveys on attitudes toward STDs. “If parents and providers don’t see the disease as a problem, then they’re less likely to be interested in the vaccine.”

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